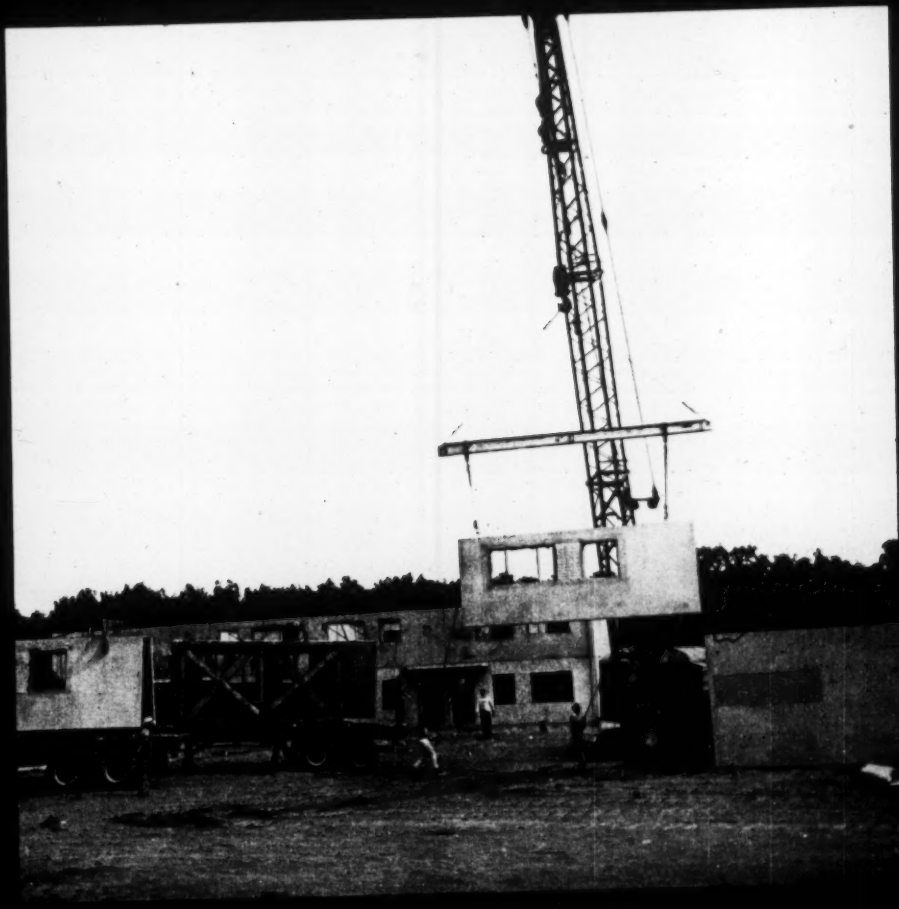
ENGINEERING NEWS-RECORD



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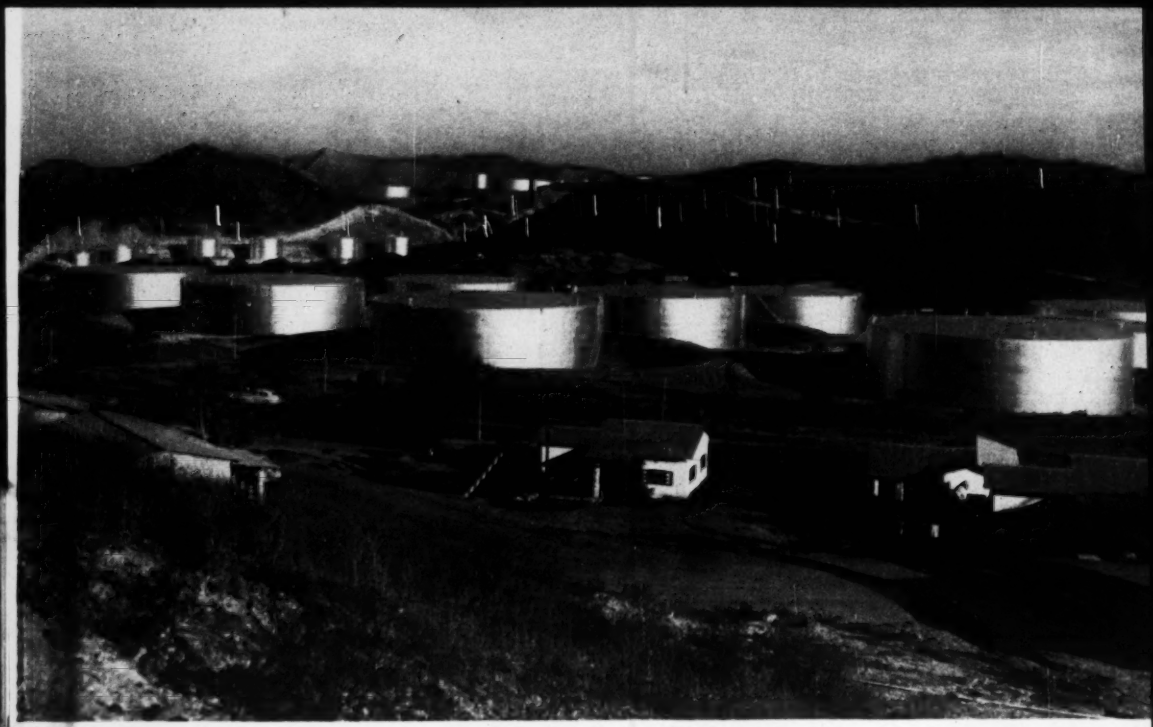

Erecting HORTON TANKS on Venezuela's rugged terrain

The nine Horton cone roof tanks shown above were installed at Sinclair's petroleum refinery near Puerto La Cruz, Venezuela, to provide additional storage facilities for crude oil and refined petroleum products. Each tank is 150 ft. in diam. and has a capacity of 150,000 barrels. With these additions, total capacity of tanks in the refinery area and the marine loading area is more than 2,200,000 barrels.

The rugged terrain around Puerto La Cruz made the construction job by no means a simple one for Chicago Bridge & Iron erection crews. Numerous ravines and valleys make up the area overlooking Chaure Bay and nearby mountains complicated the transportation of supplies. Nevertheless, construction was completed three months ahead of schedule.

These welded steel tanks at Puerto La Cruz are typical of the many Horton installations that are playing such an important part in industry throughout the world. One of the principal reasons why they have gained wide acceptance is that every Horton installation is the product of years of experience in combining the economies of modern engineering with careful fabrication and erection methods.

Consult our nearest office for information or quotations on Horton tanks.

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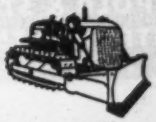

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 147 NOVEMBER 15, 1951 No. 20

WALDO G. BOWMAN
Editor

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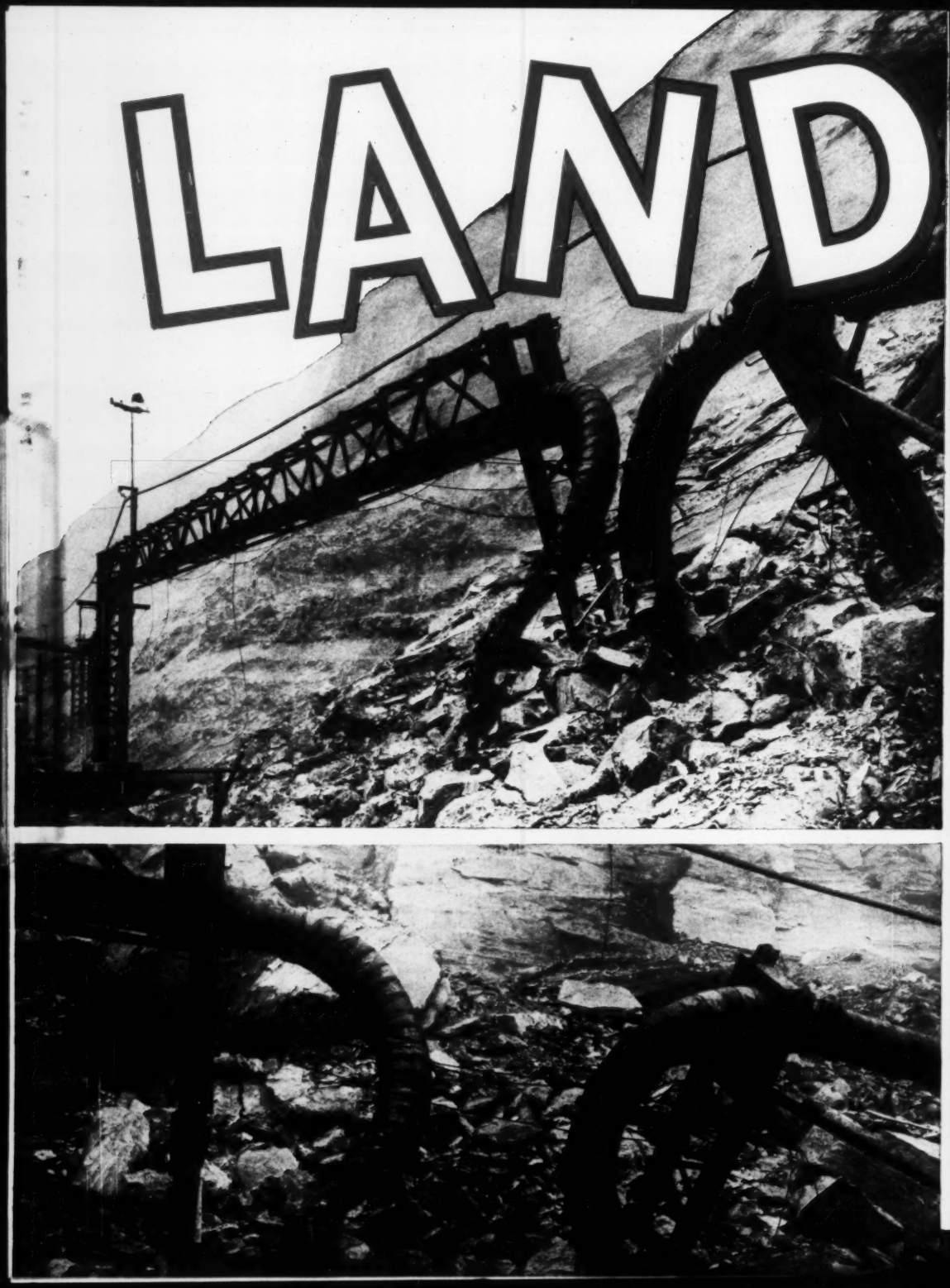
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That landslide dumped hundreds of tons of rock on this steam line of National Seamless Steel Pipe, but service continued *uninterrupted* without a sign of break, or leak, or distress of any kind in the pipe.

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Of course you don't buy pipe to wrestle with landslides. But you do buy pipe with the expectation that it will stand up under a lot of punishment in service—if the unexpected should happen. In other words, you want a good margin of safety beyond the line of ordinary duty. Well, that's exactly what made Seamless the wise choice in this particular landslide and in many other similar instances where unexpected stress and strain gave the pipe a real workout to prove its superior strength.

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NEWS BRIEFS

• **New Arizona highway**—Arizona has been notified that State Route 93—the Kingman-Congress Junction cut-off—has been accepted by the U. S. Public Roads Administration as part of the federal aid system. This road is one of the important new highways in Arizona. The state already has invested $2,500,000 in its development. The route cuts diagonally from Central to Northwestern Arizona. It will trim several hours travel time between Phoenix and the Kingman-Davis Dam-Hoover Dam area.

• **Defense unit started**—Work is being pushed on the large new Delco-Remy Division defense plant building at Anderson, Ind., a structure that will have 550,000 sq ft of floor space and employ 6,000 persons. It will be of brick and structural steel construction. It is to be finished next year. It also is reported that the Aetna-Standard Engineering Co., Youngstown, Ohio, will construct a $30,000,000 seamless tube mill for the Colorado Fuel and Iron Corp. in Pueblo, Colo.

• **Work proceeds on Park Forest**—An original group of 525 two-bedroom masonry ranch-type homes in Park Forest, Chicago suburb, has been sold and the builders are proceeding with the construction of an additional 300 dwellings of the same type. New residents have boosted the community's population to more than 13,000 in 3,000 rental apartments.

• **Figuring accident potentials**—The North Carolina Highway Commission has completed a survey to show which of the 2,024 railroad grade crossings on secondary roads in the state have the highest relative accident potential, and each crossing has been given an index rating. The survey was conducted by the highway department's Division of Statistics and Planning, headed by James S. Burch, and will be of value, Chairman Henry W. Jordan said, in planning roads and adequate safeguards at crossings where the chances for accidents are greatest. Each crossing has been given an index rating based on its physical characteristics, the number of vehicles using the crossing, and the number, time and speed of trains moving over the crossing.

• **Seagoing dredge**—During World War II, the Bureau of Yards and Docks moved dredges from continental bases—and from harbor to harbor—by loading them on floating drydocks. Standard dredge hulls were too light

(*Continued on page 14*)

On this highway job between Bardstown and Fredericktown, Ky., a 1¼-yd. Thew Lorain shovel, powered by a "Cat" D13000 Engine, loads heavy rock into Athey wagons, pulled by "Caterpillar" D7 Tractors. The contractor is W. C. Snyder, Danville, Ky.

There's a big job ahead

How your equipment stands up in the months ahead has a real bearing on America's fight to be strong and stay free. A vital part of that effort is the $12,000,000,000 worth of earthmoving and road building needed this year. And we're entering a period that will separate "the men from the boys" in the field of construction machinery.

Military needs and Defense Rated Orders are taking their share of "Caterpillar" production. Shortages of steel and other materials add to the difficulty of supplying the demand for new machines. This means that *present equipment must be kept in use.*

"Cat" Diesel Engines, Tractors, Motor Graders and Earthmoving Equipment are built with the stamina to serve you long and faithfully. But *how* long is up to you and the operation and maintenance you give them. Good care pays off.

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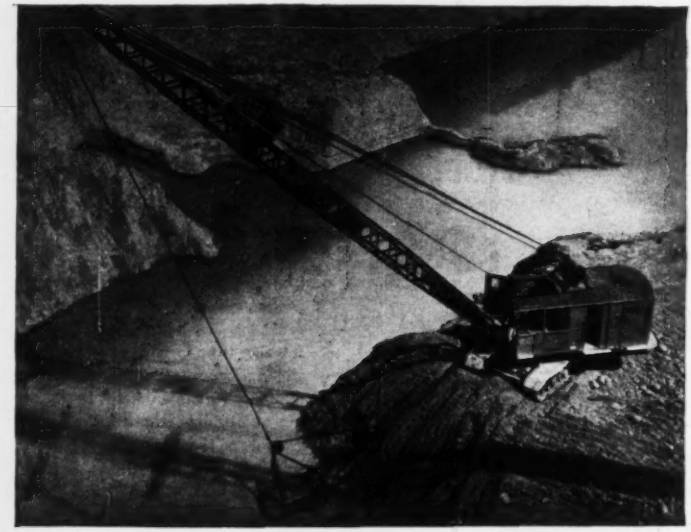

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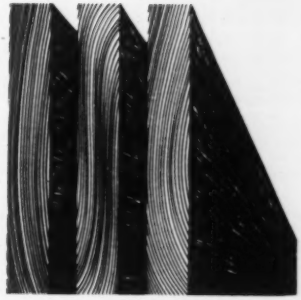
Sills and plates	6	8
Joists and girders	6	8
Screeds and subflooring	6	8
Factory flooring	6	8
Roof plank	6	8
Platforms and decking	6	8
Posts and fences	6	8
Cooling towers	..	8-10
Sign material	6	8
Millwork	6	8
Highway guardrails	6	8
Railway cars	6	8
Bridge timbers	8	10-12
Utility poles	8	8-10
Crossarms	6	8

Note: Higher treatments are recommended where wood is to serve under severe conditions, such as in the tropics. Recommendations will be furnished on request.



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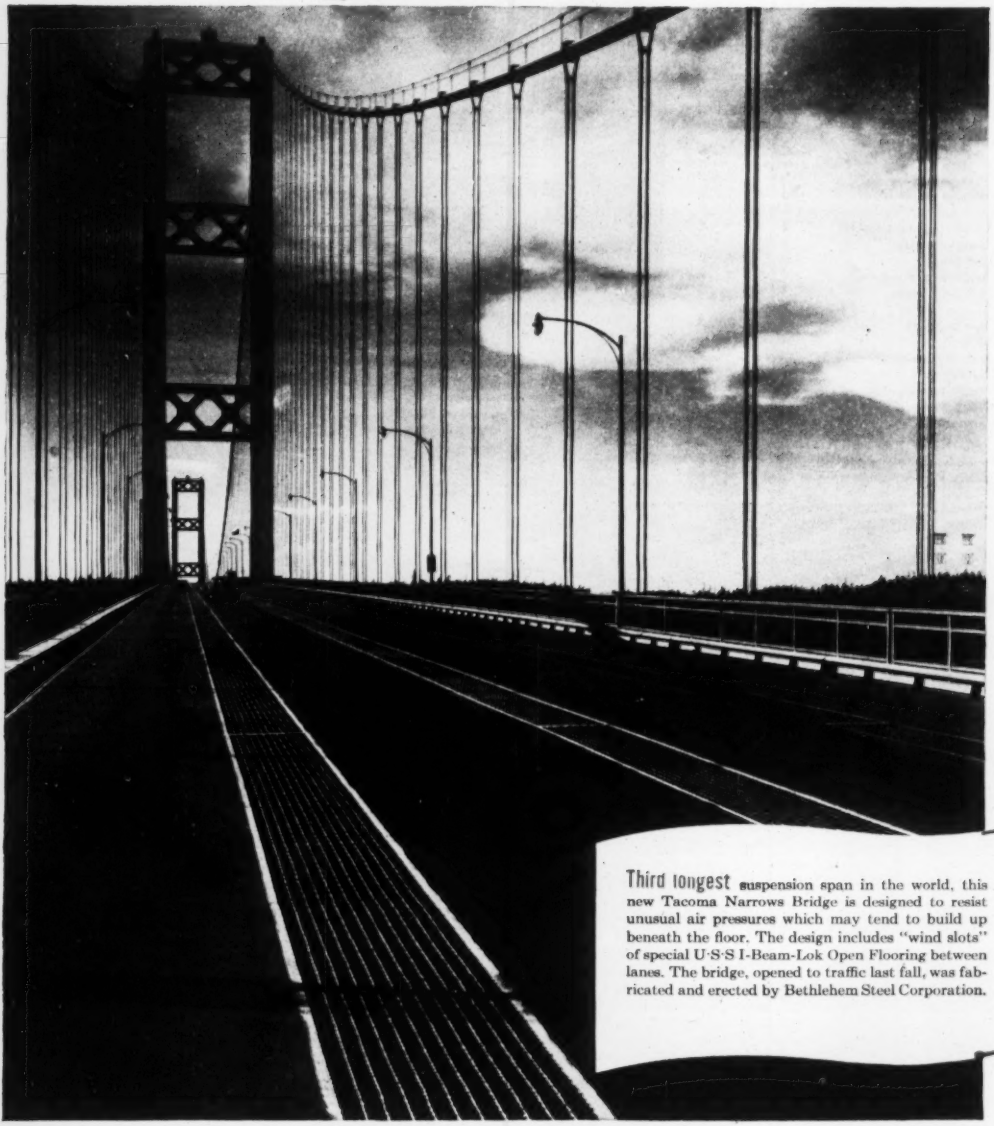
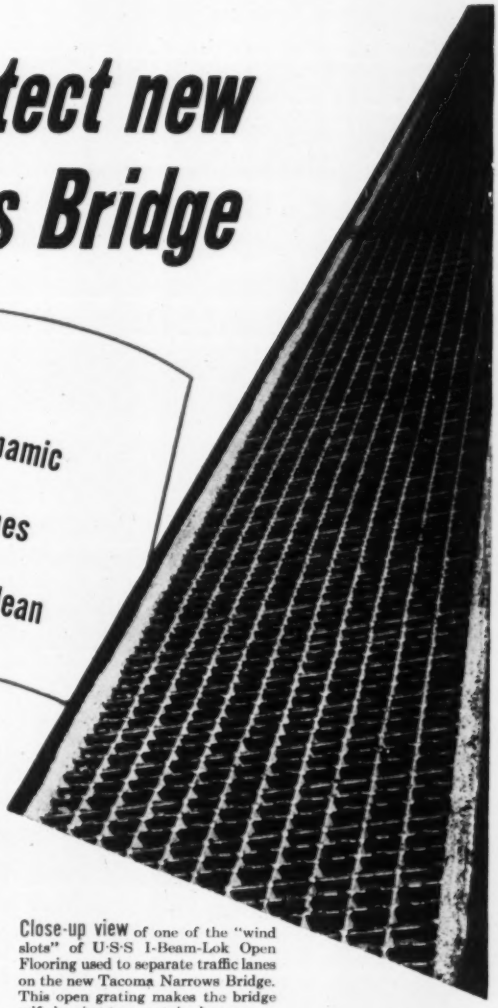
"WIND SLOTS" of U·S·S



Third longest suspension span in the world, this new Tacoma Narrows Bridge is designed to resist unusual air pressures which may tend to build up beneath the floor. The design includes "wind slots" of special U·S·S I-Beam-Lok Open Flooring between lanes. The bridge, opened to traffic last fall, was fabricated and erected by Bethlehem Steel Corporation.

I-Beam-Lok protect new Tacoma Narrows Bridge

Open gratings reduce aerodynamic stresses, separate traffic lanes and make span easier to keep clean



Close-up view of one of the "wind slots" of U·S·S I-Beam-Lok Open Flooring used to separate traffic lanes on the new Tacoma Narrows Bridge. This open grating makes the bridge self-cleaning to a certain degree.

IN replacing the bridge across Tacoma Narrows which collapsed spectacularly in a high wind 11 years ago, the State of Washington Toll Bridge Authority took every possible step to avoid a recurrence of the disaster. Engineers designed the new 18-million dollar span to resist aerodynamic forces and specified "wind slots" of U·S·S I-Beam-Lok Open Flooring between each of the four traffic lanes.

These open gratings, extending the length of the big suspension span, were installed to prevent unusual air pressures from building up under the bridge floor.

In addition, the I-Beam-Lok Open Flooring serves as an effective divider between traffic lanes and makes the bridge floor much easier to keep clean.

U·S·S I-Beam-Lok offers you unusual advantages in this and many other types of bridge construction. It is available in concrete-filled, as well as the open type.

U·S·S I-Beam-Lok is exceptionally light in weight, with the open-type weighing as little as 18.8 lbs./sq. ft. In re-flooring existing bridges, its light weight and exceptional strength often make it possible to increase H-load ratings without major changes in structure. It can be erected quickly and easily with minimum interruption to traffic.

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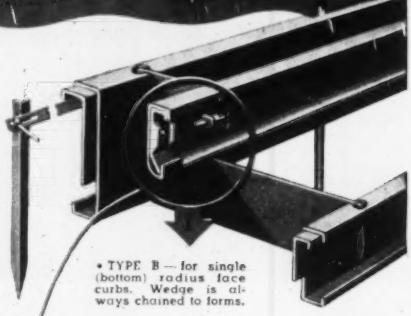
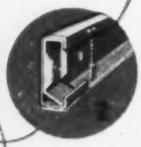


• TYPE B — for single (bottom) radius face curbs. Wedge is always chained to forms.



• TYPE A — for straight face curbs (no radii). Slide lock is rigid, positive.

• TYPE C — for double radius (S-shaped) face curbs. Sliding dowels secure upper and lower extremities.

. . . and 3 Optional
FACE CURB
FORM SUPPORTS

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STEEL FORM & IRON CO.
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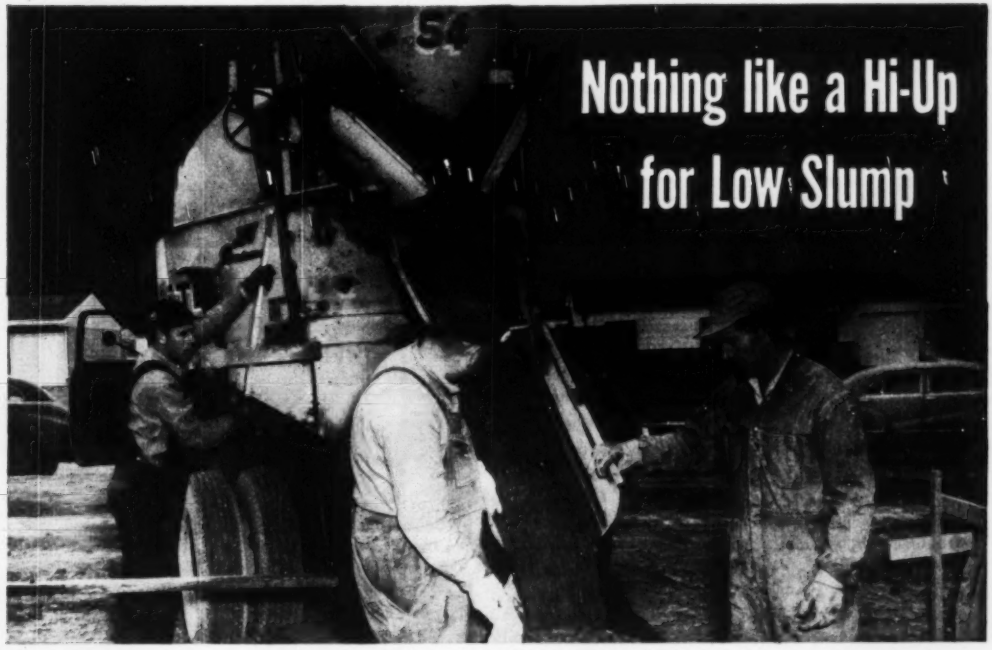
News briefs . . .

to withstand the open sea. Since then, the bureau has given study to the development of a dredge that can be towed at sea. Plans for the new dredge are now being drafted by the Elliot Machine Corp. of Baltimore, under a Navy contract. Navy civil engineers say the major differences between the new seagoing, non-self propelled dredge and the standard harbor dredge will be in the hull and in protection for the superstructure. The new dredge will be ruggedly designed to handle a wide range of materials, including sand, heavy gravel, coral, stone and blasted solids. Preliminary plans call for an 18½-ft depth of hull, a draft of 10 ft. and a freeboard of 8½-ft, instead of 3½-ft.

• **A real mole**—At Columbus, Ohio, Bob Scholl, 18 years old, height 4 ft 4 in, and weighing 74 lb., has been hired by a construction firm to probe the inside of a sewer line pipe 15 in. in diameter. Every inch of the mile-long line will be inspected and spot-patched by the lad. He stretches out flat on a padded wooden sled. He's then pulled into the pipe by ropes, later tugged out in the same fashion. His work will save time-consuming repairs involving many workmen. Ordinarily, leaks spotted after such a line is laid mean a lot of digging and costly man-hours. The youngster stays in the pipe for an hour at a time. He wears overalls, tennis shoes and a miner's cap. He is paid $2.00 an hour, plus a bonus for good work.

• **A $12,000,000 winter**—The Ohio Highway Department reports that finally it has repaired all damage caused to state roads last winter, at a cost of about $12,000,000. This expense was in addition to regular maintenance work. So severe was last winter's damage, which affected practically every section of the state, that repairs were started before winter was over, well ahead of regular schedules.

• **Driving away drive-ins**—Apparently Tipton County, Ind., doesn't like drive-in theaters. New regulations by the County Planning Board and county commissioners provide that no drive-in may be operated within a mile of a state, county or city park, of an intersection of two state roads, of the limits of any city, town or village, of a hospital, county home, nursing home, of an intersection of a railroad and any state or county highway, of school buildings or grounds. There are other restrictions which make it practically impossible for a drive-in theater to be built at all.



All over the country, Worthington-Ransome Hi-Up Truck Mixers are out-performing other makes!

Photo of 4½ cu yd Worthington-Ransome Blue Brute Hi-Up Truck Mixer fleet operated by Concrete Inc., Denver, Colorado.

Photo of 5½ cu yd Worthington-Ransome Blue Brute Hi-Up Truck Mixers operated by Lattanzio Transit Mix Co., Inc., Schenectady.

Compare them on the basis of charging and discharging time . . . compare them on the basis of maintenance—

You'll find that Worthington-Ransome Blue Brute Hi-Ups score way ahead of other makes.

You'll surely want to experience results like these—

Fred D. Hoppe, vice-president, Concrete Inc., Denver, says, "Charging and unloading time is the lowest in our fleet of 26 units. We particularly like the way they discharge low and no-slump concrete. We experience less 'down time' with these machines than anything else in our fleet." Mr. Hoppe purchased *six more!*

Lou Lattanzio, Lattanzio Transit Mix, Schenectady, says of his 5½ cu yd Hi-Ups: "We are very pleased with the discharge rate even with low-slump concrete. There has been no appreciable mechanical trouble." Mr. Lattanzio "expects to standardize on Hi-Ups."

So join the growing list of Hi-Up fleets, which include Pine Hill Concrete Mix, Inc., Buffalo—over 40 Hi-Ups; Southern Materials Corp., Richmond and Norfolk—over 20; Buzby Brothers, Westville, New Jersey—over 20; Fenton Materials Co., San Diego—over 20.

See your nearby Worthington-Ransome distributor for a demonstration. Worthington Pump and Machinery Corporation, Construction Equipment Division, Dunellen, New Jersey.

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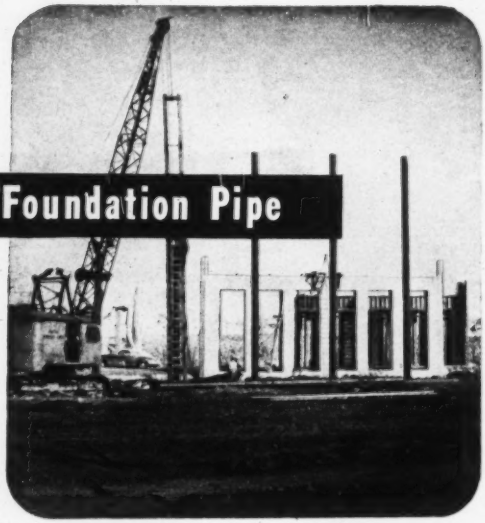
6 ADVANTAGES

Of Specifying Armco Foundation Pipe



Armco Foundation Pipe is a spirally wound and welded pipe made on automatic machines from coils of specially-prepared flat-rolled steel. It has many desirable advantages.

1. WIDE RANGE OF SIZES. Diameters from 6 to 36 inches with wall thicknesses from 9/64- to 1/2-inch save metal and money because you can use light or heavy wall as needed.

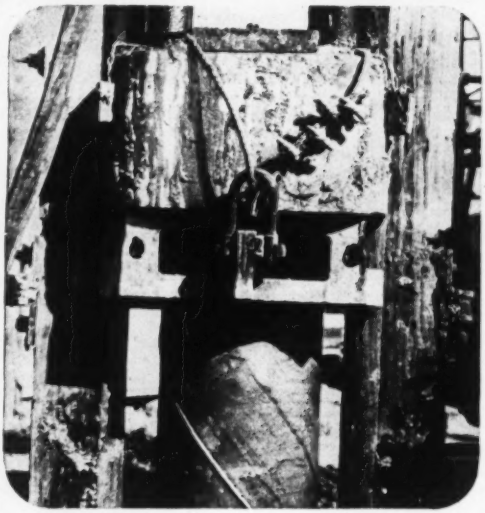
2. EXTRA LONG LENGTHS. Armco Pipe is supplied in any length that can be handled and shipped. Long lengths mean fewer field splices and cut handling costs.

3. EXCEPTIONALLY ROUND AND STRAIGHT. This reduces the number of crooked or rejected piles, and piles with specified load reduction. It also simplifies inspection after driving.

4. HIGH COLLAPSE RESISTANCE. The tough spiral weld gives Armco Pipe tremendous resistance to crushing and extra lateral stiffness in even the longest lengths. It permits driving with a simple head and no mandrel.

5. UNIFORM DIAMETER END TO END. Armco Pipe has a constant cross section for good end bearing with high bending resistance throughout its entire length.

6. MILL-ATTACHED CLOSURES. Steel end-closure plates, cone points or cutting shoes are mill-attached to save time and trouble in the field.



WHERE ARMCO PIPE CAN HELP YOU

Armco Foundation Pipe is used for end bearing, friction, compactor and batter piles, caissons and underpinning in:

1. **Building foundations**
2. **Highway and railway bridge foundations**
3. **Wharves and piers**
4. **Industrial construction**
5. **General foundation work**

For detailed information on Armco Foundation Pipe write Armco Drainage & Metal Products, Inc., Welded Pipe Sales Division, 3041 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. Export: The Armco International Corporation.

ARMCO FOUNDATION PIPE

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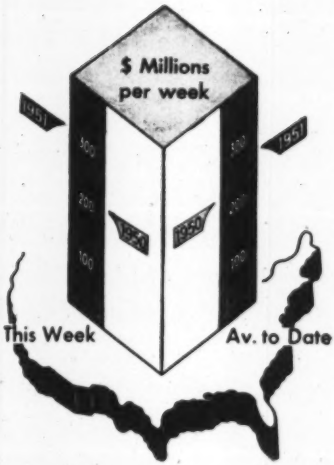
MORE SCRAP MEANS MORE STEEL . . . TURN YOURS IN TODAY

THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumulative 46 wks 1951	1950	% chge
Waterworks	$3.0	$183.0	$196.4	−7
Sewerage	18.5	303.1	254.7	+19
Bridges	3.5	287.0	332.7	−14
Highways	24.9	1,064.1	1,119.5	−5
Earthwork, Waterways	12.0	458.6	368.8	+24
Buildings:				
Public	24.4	1,923.3	1,488.3	+29
Housg., pub.	8.7	591.9	282.1	+110
Housg., priv.	61.2	1,784.1	2,900.1	−38
Commercial	11.9	556.0	871.1	−36
Industrial	118.7	3,783.1	1,430.5	+164
Unclassified	26.1	1,499.5	1,187.3	+26
Total	**$312.9**	**$12,433.7**	**$10,431.5**	**+19**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost.	Nov. '51	547.16	263.01	114.70
Bldg. Cost.	Nov. '51	404.50	218.66	114.98
Volume	Oct. '51	511	208	148

OPS BLACKOUT—Information concerning status of the construction price control regulation, has been effectively cloaked by a recent directive to agency employes from Price Stabilizer Michael V. DiSalle. The directive warns agency employes against discussing any agency actions "which have not received final approval." Engineering News-Record is continuing to gather evidence on the effect of the proposed regulation (ENR Oct. 18, p. 23) on construction.

VOLCANIC REACTION—Like some other cinder block producers in New England, Royal Sterling of Providence, R. I. has been hurt by a cinder shortage. Conversion from manufactured gas to natural gas has reduced the cinder supply, while demand for blocks has climbed. So Mr. Sterling looked far—very far—for something else to use in his blocks. By ship he brought in 20,000 tons of pumice from the Greek Island of Santorin where it has lain 3,500 years since a volcano there erupted. Now Mr. Sterling is not only able to make blocks—but claims they are better blocks than cinders make—lighter, give better insulation, and are cleaner. Production is now about 16% pumice blocks and business is so good that in two years he expects to be making them from pumice 100%.

SWOOSH!—Two out of every three applications submitted to the Construction Controls Division of the NPA for non-essential commercial, religious, entertainment, residential and community construction have been turned down during the current quarter. Of 3,834 projects that sought clearance, only 1,415 received it. The agency gave the green light to jobs having a total estimated cost of $290 million, of a total $650 million applied for, and 90% of these were for going projects.

DOUBLE TROUBLE—Mayor Fletcher Bowron of Los Angeles scored something of a victory over an old political opponent, Lloyd Aldrich, city engineer, by removing him recently as supervisor of the city's Hyperion sewage plant. The action came as a unanimous decision of the city council and followed a lengthy investigation of delays and rising costs on the project. Aldrich is replaced by Warren A. Schnieder, waste disposal engineer and head of the Public Works Department's Sanitation bureau. The mayor had charged Aldrich's operation of the plant a duplication of personnel.

ALUMINUM MISUSE—The National Production Authority this week accused two Ohio manufacturers of illegal use of 3 million pounds of aluminum. The NPA will take steps to literally force these firms out of business. Alside Inc. and Lifewall Corp., a wholly owned subsidiary of Alside, makers of aluminum siding for homebuilding were the companies named. Formal charges will be made by the government later this month at Akron, Ohio, and NPA will ask all further priority assistance, all allotments and allocations be withheld and to prohibit the firms from using any controlled materials under the defense Production Act.

SUGGESTION FOR POINT 4—Norway, anxious to utilize its technical talent abroad, seems more inclined to fit private engineers into the plans than are some of our government agencies. For example, a group known as Noreno (Norwegian Engineering Export Organization) has been created to provide engineering services.

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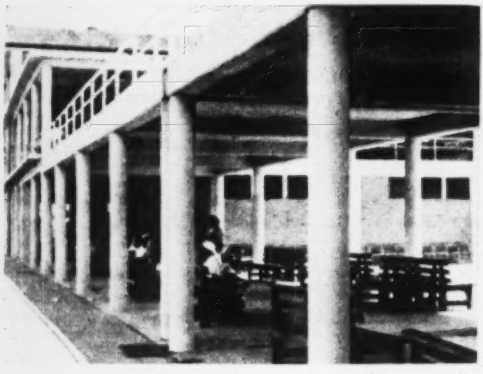
SONOTUBES

Fibre Concrete Column Forms



Piers, underpinning, platform supports, stubs, column forms, sleeves for pipe trades in concrete walls and floors are only a few of the many uses for SONOTUBES.

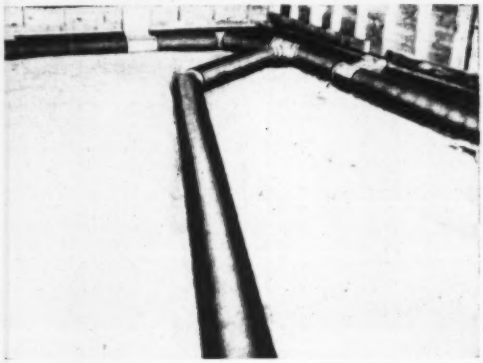
SONOTUBES are strong treated fibre round tubes that seldom require clamps and other bracing. They are for one use, and are easily cut to length with carpenters hand-saw.

SONOTUBES are stocked in sizes of 8"—10"—12"—13½"—14"—16"—18"—20"—22"—24" diameter sizes. Stock lengths are eighteen feet long.

SONOTUBES are specially treated for easy stripping and can be easily removed to provide finished columns.

SONOAIRDUCTS

Fibre Hot Air Ducts



SONOAIRDUCTS . . . laminated fibre tubing—may be used as ducts when embedded in concrete floor slabs for either supply or return lines in warm air perimeter or radial heating installations. Designed and engineered for this specific purpose, SONOAIRDUCTS have materially reduced building costs everywhere they have been used. They will save you money, not only in original purchase price, but in installation costs as well. One heating contractor using SONOAIRDUCTS reported a complete duct system laid and joined, ready for pouring in 20 minutes.

Here's how this amazing time and money savings is accomplished: First of all, SONOAIRDUCTS cost less than half as much as clay pipe or galvanized iron. They are lightweight—can be ordered in any lengths up to 25'. This means easier handling, quicker installations and faster leveling. Popular sizes are 6"—8" and 10" diameters . . .

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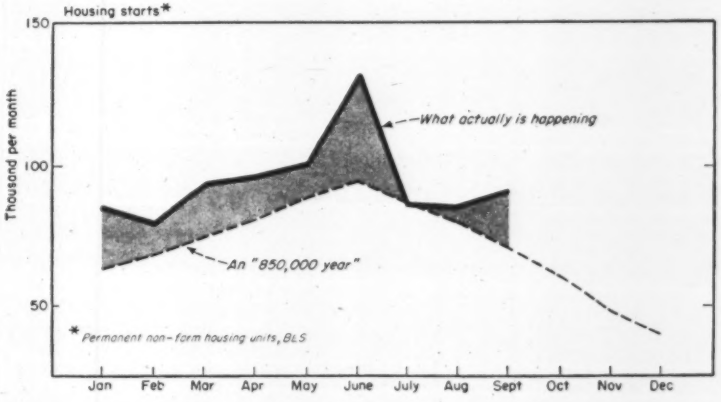
HOUSING CONTROLS—NEXT YEAR'S QUESTION

Will real estate credit control work in 1952?

They haven't worked out as expected so far this year. Builders will start well over one million housing units this year, and starts may even reach the second highest total on record. Many economists and builders had expected controls to cut 1951 starts to 850,000, or even less.

Controls do seem to be working in mass housing. ENGINEERING NEWS-RECORD figures on contracts for private housing are 39 per cent below their 1950 level for the first 45 weeks of 1951.



• **Next Year**—Now mobilization officials want to cut 1952 starts to 700,000-850,000 in order to save scarce copper and brass. They are wondering if present credit controls are tough enough to do the job.

At least one fact favors the controllers. There are very few "pre-reg" mortgages left. By the third quarter of this year, commitments rushed through before the deadline in October, 1950, had just about run out.

But some potent forces are working against controls. Americans can now make higher down payments and pay higher interest rates than they could when credit controls were first applied. Their incomes after taxes are estimated at an annual rate of $225.7 billion for the third quarter, 9 per cent higher than in the same quarter of 1950. And they are building bigger savings balances, too. The high rate of savings, plus a continued rise in incomes, may make Regulation "X" largely ineffective by the second half of 1952.

Politics also favors a high level of starts next year. Congress has already relaxed credit controls once and might well relax them further if they pinch too many builders and home-buyers.

Third quarter housing starts show how these forces may add up in 1952. Starts dropped only 8 per cent below the previous quarter—in spite of the disappearance of most pre-Regulation "X" financing arrangements.

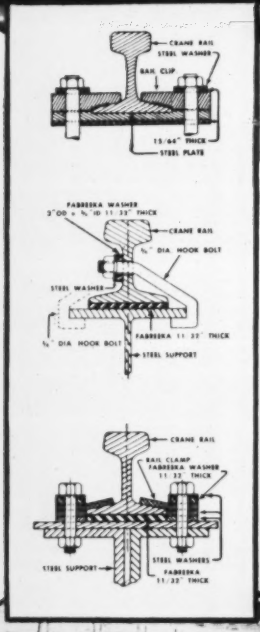
• **The Outlook**—Under these circumstances, real estate controls cannot be expected to cut 1952 housing activity to the levels defense officials want. Much tougher controls will be needed if public demand for new housing stays high—and Federal housing agencies think it will.

As a result, builders face the possibility of a new Federal licensing system, or at least much stricter controls on scarce materials, sometime within the next six months.

Future **Trends** will deal with other aspects of the 1952 outlook for housing.

FABREEKA

Fabreeka Pads are used on this Traveling Bridge Crane to absorb impact shock and transmitted vibration.



Fabreeka Pads Reduce Maintenance Costs of Cranes

WHEN USED UNDER CRANE RAILS TO *ABSORB IMPACT SHOCK* AND *TRANSMITTED VIBRATION*

WIDELY USED — UNDER THE RAILS of Traveling Bridge Cranes and Overhead Cranes — Fabreeka Pads absorb impact shock and transmitted vibration . . . protect the entire crane structure and its foundations from the effects of these destructive forces.

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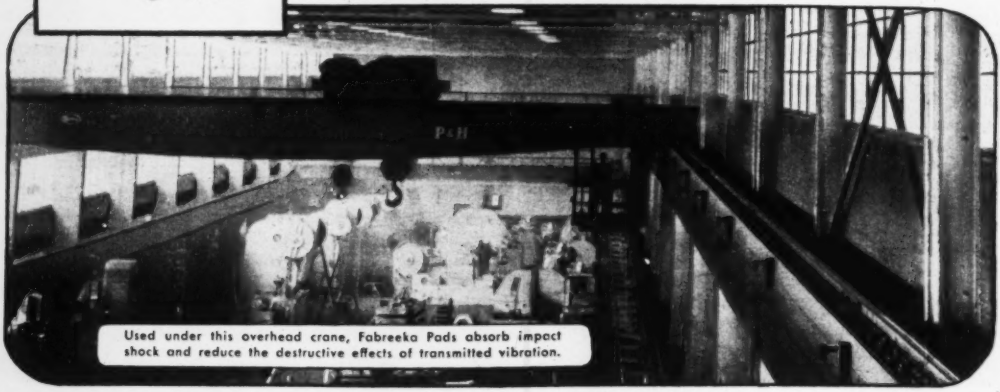

Used under this overhead crane, Fabreeka Pads absorb impact shock and reduce the destructive effects of transmitted vibration.

"Beefed-up" airfields

A MAJOR PROBLEM of those responsible for providing the nation's expanding Air Forces with adequate fields is that of making the most out of the fields built for training and tactical purposes during World War II. Fortunately, experience gained since those fields were built has simplified the problem considerably.

For example, we now know that the heavy duty runways of that period were overdesigned—they will carry 30,000 lb axle loads instead of 15,000. It also has been found that more runways than were actually needed were provided at many fields.

On the other hand, the newer planes require longer runways and flatter angles of approach. But here, too, experience helps, for it indicates that the necessary extensions can be built with a cross-section that would have been considered wholly inadequate by some designers a decade ago.

How far the economies that are made possible by today's fuller knowledge will be applied remains to be seen. Designers, quite naturally, do not like to admit that they made errors of judgment or were over conservative. But if the more economical designs are followed, very large savings can be made in the rehabilitation of existing airfields and in the construction of new ones.

Advance planning time

IN HIS RADIO ADDRESS last week, President Truman pointed out that it is not inconsistent for the U. S. to be engaged in a great armament building program while at the same time working toward a world reduction of armaments, including our own. He was merely illustrating again the old adage, "In time of war work for peace," which also has application to the present construction industry situation.

Concerned as they are with building for defense, engineers, contractors, industrialists and public officials should not overlook the temporary nature of this endeavor. The President's brave hope for an agreement on reduction of armaments might, on a long chance, bear fruit. What is more likely is that our armaments will soon be built up to satisfactory size, permitting sizable cutbacks in the defense program "take" of materials, money and manpower. In either event more of our national energies would be released for peacetime building.

How adequate is the advance planning for such a possible state of affairs? The backlog of proposed projects that ENR compiles is more impressive than ever. About $9 billion has been added this year to bring the total to $61 billion. But not too many of these projects are anywhere near ready to go. Industrial plants provide the best example of advance planning, highways are fair, as are federal water projects. Elsewhere blueprints are rare, and Housing and Home Finance Agency's Division of Community Facilities that once functioned well in providing federal loans to municipalities for advance planning went out of the planning business Oct. 13, by Congressional order.

The situation suggests that it might be well to begin to look into the future, uncertain though it may be. Energy expended on advance construction planning is seldom wasted.

Union responsibility

IT IS INTERESTING—though not particularly surprising—to the construction fraternity that Congressmen investigating labor conditions at AEC installations in the South have found contractors following the maxim: "If you can't beat 'em, join 'em." It is certainly no surprise that the eminently hardheaded, practical staff supervising construction for the du Pont company has accepted the fact that it can work best by falling in with Building Trades union rules and practices in the matter of hiring men and dealing with them on the job. (See p. 24 of this issue for details.)

If the good Congressmen wanted to take the time, they could find a similar situation on almost any construction job, where speedy completion of the work is considered the prime objective.

What is surprising is the continued lack of emphasis on the one thing that should be a requirement, if these conditions prevail: Responsibility and real control by the unions.

A review of the ever-recurring construction labor troubles at many AEC plants (ENR Nov. 8, p. 23) makes it very clear that most of the difficulty is traceable to lack of real union leadership in holding local leaders in line—and in insuring that irresponsible leaders are replaced.

The international unions have the power to discipline their locals—very drastically, if need be. More, they have the facilities to advise and counsel the local leaders concerning situations such as those at Savannah River, Paducah, and elsewhere where a large reservoir of labor, much of it from outside the area, is suddenly dumped on a relatively small union local. How far the international leaders have gone in counseling locals is not known, but it is obvious that the advice has not been heeded.

True enough, the contractors themselves may not be entirely blameless. But the unions have the basic and much larger responsibility—to see to it that construction doesn't give itself an incurable black eye because union leaders default on their responsibility to avoid the bad situations or clear them up promptly when they appear.

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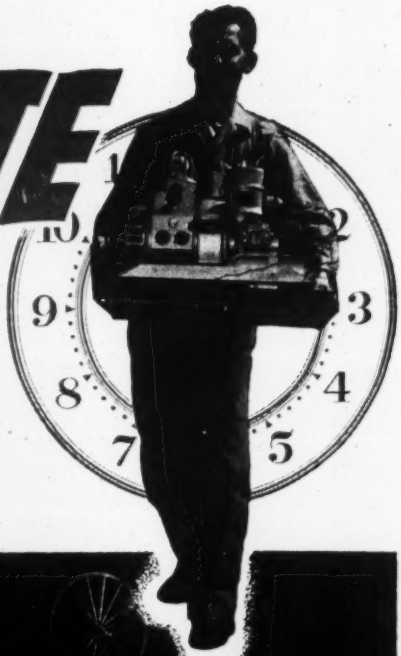

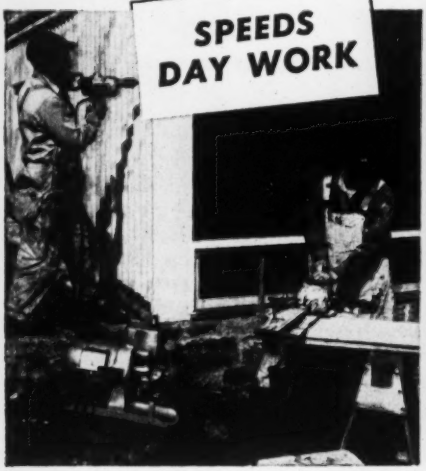

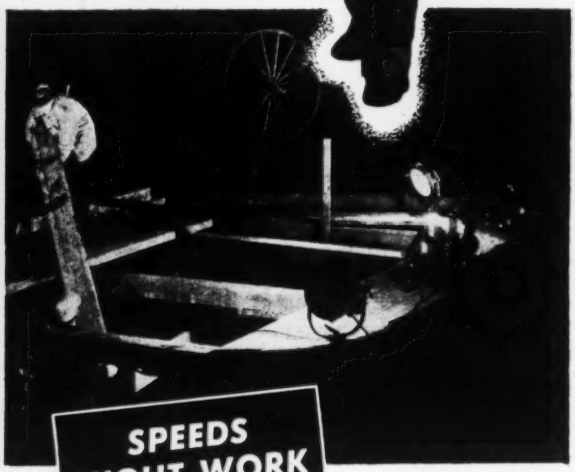

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ENGINEERING NEWS-RECORD

NOVEMBER 15, 1951 VOL. 147 NO. 20

Construction slumps below 1950

Ominous greater-than-seasonal drop reported in volume of awards and new jobs put in place

Construction activity has begun to sag.

Hobbled by red tape, harried by scarcity of building materials, contractors are making less and less headway against a steadily mounting backlog of business.

The ENGINEERING NEWS-RECORD index of construction contract awards has registered a new drop. In the first quarter, the weekly average stood at $317 million; in the second quarter it was off to $256 million; by the end of the third quarter, it recovered to $265 million.

Now for the first six weeks of the fourth quarter it has fallen to an average of $233 million in construction contract awards—below the $238 weekly average for the entire year of 1950.

Last week the Labor Department's Bureau of Labor Statistics, and the Commerce Department's Building Materials Division jointly reported "delays in construction projects extend even to the basic steel and electric power expansion programs."

For the month of October, they put the total value of new construction at about $2.7 billion, off 5% from the September total and 3% less than the total for October 1950. It is more than a seasonal decline.

• **To get worse**—Construction came completely under the Controlled Materials Plan on Oct. 1, 1951. When supplies of controlled materials on hand before that date are used up, the amount of construction that can be carried on will depend largely on allotments of steel, copper, and aluminum.

And those allotments, Defense Production chief Manly Fleischmann says, are going to be lower. At a press conference last week, he conceded that his CMP is a little too baggy.

The Defense Production Administration has been over-allotting controlled materials to users by about 12% of the total supply. Mr. Fleischmann explains that this is allowance for an "attrition" factor which was worked out in the last war. It is based on the assumption that not all of the CMP tickets will be turned in because of job delays and for other reasons.

• **Change seen**—But it has not worked out that way. The result has been a lot of unfilled orders. And Mr. Fleischmann says DPA will reduce its allowance for "attrition" in its allowance for controlled materials in the second quarter of 1952. (For *first-quarter allotments*, see page 25.)

In addition to this, the National Production Authority plans to tighten up on the use of priority ratings. Builders and other business men will get less help in the future in their search for materials.

Too many "DO," and "CMP" ratings are floating around they claim. Under consideration is a rule which will lift the "DO" rating from all except materials programmed for military or atomic energy projects, or confine it to cases where the supply of steel, copper, or aluminum will be a "limiting factor" because no reasonable substitute is available.

• **Shortages cited**—Material shortages are limiting almost all types of construction, according to the BLS and BMD report on the slump during October. Structural steel, they say, is the principal limiting factor. The availability of copper items, however, may soon be expected to supersede structural steel as the determining factor in the volume of construction, particularly in types of construction where structural steel is not too important.

According to steel industry spokesmen, the demand for structural is easing at the mills. They insist this means the shortages will soon be over. But lessened demand stems from the government clamp-down on construction, which makes it impossible to judge the underlying situation.

And one thing is certain: The shortage will be over when salesmen come around to sell structurals to customers.

• **Other side**—At the opposite place at the table, Mr. Fleischmann is so optimistic about progress of DPA programs to expand production, he ventured this prediction last week:

"The steel situation is now in its worst stage. It will ease late in 1952. By the first part of 1953, we might even be able to remove structural steel from CMP coverage. I don't predict that, of course, but it's certainly in the realm of possibility."

New York builders blast NPA controls

NEW YORK—The Board of Governors of the New York Building Congress last week set a sizzling resolution of protest to Defense Mobilizer Charles E. Wilson and Defense Production Administrator Manly Fleischmann.

It states that National Production Authority controls "have confused and unnecessarily retarded the construction industry . . . to the point that, if continued, they will bring the construction industry to a halt."

It also says "the regulations, as applied to the construction industry conserve little critical materials and at the same time they are crippling a great industry."

• **Recommendations made** — To straighten out these "unrealistic controls," the resolution urges the NPA to make the following changes in its regulations:

(1) Consult with representatives of the construction industry before promulgating regulations.

(2) Prove that building which has commenced may be completed.

(3) In defining the commencement of construction, recognize substantial financial and legal commitments although construction has not started.

(4) Establish a firm policy that amendments of regulations shall not affect construction started under regulations in effect prior to amendment.

(5) Grant allotments for an entire construction project, thus permitting orderly and economical progress to completion which is impossible with the present quarterly allotment plan.

(6) Thoroughly investigate possibilities of increasing the available amount of critical materials to be used in construction.

Copies of the resolution are being sent out as a sample to other construction organizations throughout the country asking that the industry "present a united front in Washington."

OPEN LABOR HEARING—These members of a House subcommittee on Education and Labor opened a hearing last week in Augusta, Ga. to determine if federal labor laws are being violated at the Savannah River AEC project. Left to right, Rep. John Wood, Ga.; Rep. Graham A. Barden, N. C., chairman; Rep. Harold H. Velde, Ill.; and Rep. Richard B. Vail, Ill.

House group hears union cooperation called essential to H-bomb project

AUGUSTA, GA.—A subcommittee of the House Armed Forces Committee gathered some hard facts about the construction industry last week, as it wound up hearings here on labor conditions at the Atomic Energy Commission's huge Savannah River project.

Five days of testimony by contractors, engineers, management officials, labor union leaders and individuals adduced ample testimony that:

- E. I. du Pont de Nemours & Co., principal contractor on the gaseous diffusion plant, has accepted what its officials called the fact that the "best way to get on with the work" is to cooperate with the AFL's building trades unions.
- Everyone concerned on the 200,000-acre site is aware that what could be classed a closed shop is in effect—but nobody has complained officially to the National Labor Relations Board of any violation of the Taft-Hartley Act.
- Many of the union locals in the area have enjoyed very large increases in their treasuries; some unions are charging what appear to be large initiation fees to people not holding union membership.
- The procedure being followed in hiring is common throughout construction.
- The U. S. employment service has been used only to obtain clerical and similar help, not construction workers.

(Complaints to congressmen of discrimination in hiring and exhorbitant initiation fees started the committee on its check, as reported in ENR Nov. 8, p. 23.)

- **Get on with it**—From the first day the session produced both cold fact and pointed sarcasm.

One of the first witnesses, Curtis A. Nelson, manager of the AEC's Savannah River office, told the subcommittee that the job could not be done "without resort to the unions as a primary source of labor supply."

"I have never yet been able to man a job without the AFL," he added.

Nelson's position was strongly supported by du Pont. Said Granville M. Read, chief engineer: "There is nothing more important than to get on with the job. We have found, through long experience, that the cheapest and most practical way of building up a skilled labor force in a critically short period of time is by enlisting the cooperation and recruitment resources of the AFL.

"These practices have long been recognized in the construction industry. I am surprised that they come as a shock to certain of our investigators at this time."

A union leader—Y. F. Geeslin of the Bridge, Structural and Ornamental Iron Workers—backed this premise in commenting on his union's efforts to keep its men on the job, despite the hiring of some non-union workers. "If this hadn't been a defense job," said Geeslin, "we wouldn't be there. We would have asked du Pont to declare a policy . . . and if it wasn't to our taste, we wouldn't have shown up."

- **Concrete, not words**—Strong feelings on the matter of investigation was not disguised by the principal contractor.

Stressing the fact that his company had accepted the contract on a cost plus fixed fee of exactly one dollar, Read told the Congressmen that the company had taken on the job only at the insistence of "the highest governmental authority."

"We have had a total of eight overlapping investigating groups, either official or unofficial, occupying the time of our top people on this project," he said. "We can't pour concrete and attend investigations at the same time."

Committeemen indulged in some sarcasm too. When Nelson was asked whether he was aware that men could not get work at the project unless they paid fees of from $20 to $200, he answered he had never had a complaint from an individual on this.

"Is that a test?," countered Chairman G. A. Barden. "I remember a general who said he never had a complaint from a private."

- **Fees charged**—Records introduced by committee investigators and counsel did indicate large receipts by local unions. According to these records, for example, a local of the Operating Engineers had a net worth on Jan. 1, 1950, of $23; by Sept. 30, 1951, its net worth was $45,684.

Other evidence to indicate similar rapid gains in union treasuries was introduced, as was evidence that initiation fees do range between $20 and $200, depending on classification of the worker involved.

It was also testified that two classes of non-union employees have been hired on the job: Former residents of the area, displaced by the project; and what was called a "token" force of others hired to make it appear that an open shop exits.

Labor leaders vehemently supported their objections to the use of non-union labor, and—in commenting on fees—contended such fees were necessary to insure proper selection of the thousands of would-be workers who wanted jobs at the plant.

Public Health Service issues basin reports

WASHINGTON—Two more basin reports on water pollution have just been issued by the U. S. Public Health Service.

No. 4 covers the Great Basin (California, Idaho, Nevada, Utah and Wyoming) where it claims 150 treatment works are needed, 92 municipal and 58 industrial. No. 5—on the California basin—sets the need there at 220 plants, 204 for cities and 16 for industries.

Estimated cost of fulfilling municipal treatment needs for the 938,000 people in the Great Basin is $9,135,000.

Most construction programs slashed in first quarter DPA allotments

WASHINGTON—Lack of structural steel will severely retard most construction programs during the first quarter of 1952. That generally accepted fact was more sharply outlined this week when the Defense Production Administration announced the program allotments for the quarter.

Highways, schools and shipbuilding suffered deep cuts in the agency's effort to balance supply and demand. Highways were reduced more than 70% below requirements, and the other two programs were cut about 50%. But all three have hopes of some slight increase in their allotments.

DPA's appeals boards on program requirements is considering the three cases this week. As shown in a significant footnote to the accompanying table of first quarter allotments, the agency has a reserve of some 72,000 tons for program adjustments. Administrator Manly Fleischmann and his chief, Mobilization Director Charles E. Wilson, have already indicated that steel allotments to schools, highways and ships will be subjected to careful review.

• **Many hit**—Most construction programs except atomic energy took cuts in structural shapes for the first quarter. Even the Defense Department gets only 89% of its requirements, as compared with 94% in the current quarter. Part of the reason for the added cut is that the military men haven't yet assigned all their allotment to specific projects.

Defense Electric Power Administration makes a slight gain for the first quarter, getting 77% of its requirements instead of the 75% allotted for this quarter. The reduction in allotments to the DEPA program was made possible by stretching out the power build-up over four years instead of three.

Oil and gas construction, under the Petroleum Administration for Defense, also gets a better deal for the first quarter, with nearly 77% of its requirements covered, as compared with only 59% in this quarter.

• **Slight rise**—Industrial and commercial construction—lumped under the NPA Facilities Bureau—likewise gets a bigger allowance for the first quarter, regarded as the peak period for industrial for the current program requirements. For the next quarter, it is allotted 360,000 tons of structural shapes, or nearly 63% of requirements.

Two allotments to manufacturer divisions of NPA will cause concern to engineers and contractors. First, the allotment to building materials producers is bad enough, but it is not quite so drastic as it looks. The difference is accounted for by the fact that some manufacturers included their requirements for bar shapes under structural shapes. They were not familiar with the definition that a structural shape must have one cross-section dimension of at least 3 in.

Another severe cut for manufacturers hit the construction machinery producers. They will have only 30,000 tons of structural shapes for the first quarter, less than 40% of their stated requirements. The sharp reduction is bound to hamper production operations during the quarter.

Claimant agencies for these and all other construction programs battle hard to have their requirements filled. They maintain that their stated requirements are carefully compiled on the basis of actual project needs reported from the field.

When reduced allotments are made to the claimant agencies, they apportion them among the projects in a way that will, first, push needed jobs along to completion and useful operation and, second, furnish materials to essential projects that must be started to prevent serious delays to the defense program.

STRUCTURAL STEEL ALLOTMENTS
FIRST QUARTER 1952
(TONS)

Program	Stated Requirements	Allotment	Percent
Army (Civil Functions)	16,916	13,000	76.9
Atomic Energy Commission	36,534	36,500	99.9
Civil Aeronautics Administration	17,396	5,400	31.1
Defense Department	192,364	171,000	88.9
Defense Electric Power Adm.	185,376	143,000	77.1
Defense Minerals Adm.	18,536	15,000	80.9
Defense Solid Fuels Adm:			
Coke Ovens	5,600	4,500	80.4
Coal Mines	5,300	4,000	75.5
Defense Transport Adm.	45,000	22,000	48.9
Federal Civil Defense Adm.	47,250	5,400	11.4
General Services Adm.	7,636	5,000	65.5
Housing & Home Finance Agency	19,690	10,500	53.3
Interior Dept.	1,815	1,459	80.4
Maritime Adm.	33,238	17,000	51.1
Petroleum Adm. for Defense	71,905	55,000	76.5
Public Roads Bureau	179,127	50,000	27.9
Veterans Adm.	7,548	5,472	72.5
Federal Security Adm.:	47,382	22,800	48.1
Schools	26,366	15,504	58.8
Hospitals	.....	.....	.....
NPA Building Materials Div.	113,304	4,560	4.0
NPA Construction Mchy. Div.	82,275	30,000	36.5
NPA Facilities and Construction Bureau:			
Industrial and Commercial Construction	571,949	360,000	62.9
Reserves for MRO, Self-Certification, Field Cases, Small Users	.....	21,800 Tons	
DPA Reserve for Program Adjustment	.....	72,305 Tons	

Charles B. Spencer

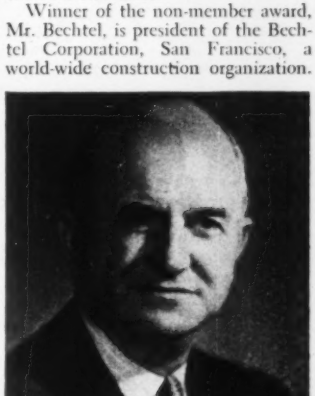
Moles Association names winners of 1952 awards

NEW YORK—Stephen D. Bechtel and Charles B. Spencer were announced as winners of the Moles awards for 1952. The announcement came from George Ferris, vice-president of the Moles, New York Association of tunneling and heavy construction men. The presentation will be made on February 6, at the Waldorf-Astoria hotel.

The Moles awards, considered one of the highest recognitions for service to the American construction industry is given each year to one member and one non-member.

Mr. Spencer is the member award winner and president of the engineering and construction firm of Spencer, White and Prentiss, New York. He is known primarily for his work in the field of heavy and unusual foundations for structures.

Winner of the non-member award, Mr. Bechtel, is president of the Bechtel Corporation, San Francisco, a world-wide construction organization.



Stephen D. Bechtel

To meet critical shortages

Aluminum and copper producers map long range plans to increase output

While there is little immediate relief in sight for the construction industry from the pinch of copper and aluminum shortages—long-range plans are encouraging.

Construction work that will go into expansions of production facilities for these two materials is in itself sizeable. But beyond that, these expansions will provide more materials for construction—enough to have a tremendous impact on building techniques should defense needs unexpectedly ease.

Here is a summary of principal plans for increasing production of aluminum and copper.

Boost in aluminum

Compared to copper, earlier relief is promised from the aluminum shortage. Last week two major expansion programs were announced.

• Kaiser Aluminum & Chemical Corp. is undertaking a $100-million program to double the 100,000-ton capacity at its still-building Chalmette, La. plant, increase its alumina plant at Baton Rouge by 60% over its originally designed capacity, and enlarge other facilities.

General Services Administrator Jess Larson said a "supply contract" has been signed with Kaiser under which the government agrees to buy up to 100% of the expanded production from the new Chalmette plant over the next five years. First metal from the plant is expected to be poured next month. The new plans will boost its ultimate capacity to 200,000 tons a year.

• Anaconda Copper Mining Co. last week decided to enter the aluminum business and build a $40-million producing plant at Kalispell, Mont. In two years it will add another 108 million lbs of aluminum ingots annually to the 1,500,000 lbs expansion capacity already approved and scheduled to be in operation by the early part of 1953 (including the new Kaiser plans.)

• **Newcomer**—Anaconda, the world's largest producer of copper, took over the commitments of Harvey Machine Co. for construction of the plant and purchased the Harvey contract for power from the government-owned Hungry Horse Dam. (See Perspective page 116.) It does not plan to build the alumina plant planned by Harvey, but will obtain its bauxite from other companies in the country.

To operate the plant, Anaconda is forming a new Montana company, in which Harvey will have a small interest. Anaconda will finance the project, and is reported to have obtained a certificate of necessity entitling it to accelerate amortization of construction costs.

The entire project still depends on necessary clearances from Washington but apparently defense mobilizers have ended their search for a new aluminum producer of sufficient industrial size to make a competitive showing against the three companies already in the field—Aluminum Company of America, Reynolds Metals Co., and Kaiser.

• **Other plans**—For aluminum expansion, however, this may not be all that is in store. Top defense officials want to add more raw aluminum capacity to augment the government-sponsored trend to substitute aluminum for copper, and to underwrite possible expansion of the Air Force to 130-or-so wings.

Here are the other expansion programs approved by the government and accepted by producers to date:

• Alcoa: 25,000 tons at Point Comfort, Texas; 85,000 tons at Wenatchee, Wash.; 85,000 tons at Rockdale, Tex.

• Reynolds: 75,000 tons at Corpus Christi, Tex.; 20,000 tons at Jones Mills, Ark.; 5,000 tons at Troutdale, Wash.; and 20,000 tons at Longview, Wash.

In addition the government has approved two projects not yet formally accepted by producers. These include 20,000 tons for Kaiser at Spokane, Wash.; and 60,000 tons for Reynolds which the company now intends to put at Jones Mills, Ark.

The interval between government approval and final acceptance by the producers is usually spent lining up money. So expansion officials, which are now groups under Jess Larson in his twin roles as head of the General Services Administration and head of the new Defense Materials Procurement agency, don't count for sure on project until the producers return with the money in hand to sign final papers.

More copper sought

Plans to expand copper production are moving ahead rapidly, but will not come into production for four to five years. Government moves to spur new expansions include these:

• Action is expected soon by the Reconstruction Finance Corp. on a request by Copper Range Co., for a $57-million loan to develop a rich copper vein in upper Michigan. Once the operation gets underway, it is estimated to produce about 72 million lbs annually—but that will not be until 1954 or 1955. The project has the endorsement of the Defense Production Administration, the Defense Materials Procurement Agency, the Munitions Board and others.

• Development of an ore body in Arizona by Phelps Dodge Corp. is underway. The project has been certified as an emergency facility and a contract signed with the government for sale of a portion of its production at a fixed price. Approximately $25 million will be required to get at a deposit containing a recoverable yield of 600,000 tons. To get this, however, some 70 million tons of waste material will have to be removed. No production is expected before 1954 or 1955.

• Authorization from Washington is awaited for a Magnum Copper Corp. project in Ariz. which would require $75 million to $100 million to bring into production, but which may hold even larger reserves than the Copper Range project in Michigan.

• **Cause cited**—The current copper shortage has been caused by increased requirements for defense at a time when imports have dropped off sharply and the government's stockpile is being built up.

To give copper producers greater freedom in setting up their production schedules, the NPA last week issued a regulation giving mill customers greater assurance of placing their orders with their regular suppliers. The order is designed to reduce the dislocation in normal customer-supplier relationships caused by the mobilization program.

New scandal hits Ohio

CLEVELAND—Another scandal has broken in the Ohio State Highway Department. The first was suspension of two department engineers about a month ago following the collapse of a newly opened stretch of highway on Route 36 (ENR Oct. 4, p. 26).

Then, the very day these two engineers were returned to duty, six more highway department workers were suspended. Highway director T. J. Kauer, annnounced the suspension pending an investigation into the reported use of state material and equipment in building a home for Thomas Keegan, personnel officer of the department's Cleveland district.

Keegan is included in the six under suspension for 30 days.

Construction plans for highways lively

Planning activities for highway construction last week stirred up interesting developments across the nation. Here are the highlights:

• **Michigan**—It was announced that bids will be opened Nov. 20 on an $80-million bond issue to speed construction of the Edsel Ford and John C. Lodge Expressways, after approval of the State Municipal Finance Commission was received. They are joint State-County-City projects into Detroit.

• **California**—Major highway construction projects have been allotted $72 million in the budget of the California Highway Commission for the 1952-53 fiscal year starting next July 1. Upwards of $45 million has been earmarked to continue construction of essential freeways throughout the state.

• **North Carolina**—A turnpike authority authorized by the 1951 session of the State legislature was appointed by Governor W. Kerr Scott. Its purpose is to "construct, maintain, repair and operate turnpike projects and to issue revenue bonds to finance such projects."

A survey made of the state last year failed to show that revenue would be sufficient to finance a turnpike project. Gov. Scott, in appointing the authority, said he thought the situation may be different by the time a program is developed and the State may need a high-speed, heavy-duty toll road.

Named on the authority are: Edwin L. Jones of Charlotte, president of the J. A. Jones Construction Co., appointed for three years; Nello Teer, Sr., Durham contractor who helped build the Pennsylvania Turnpike, named for two years; Orton Boren of Greensboro, president and treasurer of the Boren Clay Products Co., appointed for four years; and Ben E. Roney of Rocky Mount, an oil dealer and the governor's assistant, named for one year. State Highway Commission Chairman Dr. Henry W. Jordan is an ex-officio member.

• **Oklahoma**—The first 27 miles of the Oklahoma City-Tulsa toll road will be paved with asphaltic concrete, it was decided by the Oklahoma Turnpike Authority. Five contracts for four-lane paving in Creek County totaled $3,007,494. The nearest Portland cement bid was for $3,412,977. The low bids called for 5-in. of asphaltic concrete on a 7-in. crushed rock base.

• **Ohio**—Court action contesting the constitutionality of Ohio's superhighway across the northern part of the state, threatened to delay the project after Gov. Frank J. Lausche approved its final routing.

An attorney for the Maumee Valley Improvement Association said he would file suit because the route "creates a Chinese Wall" between Maumee and Toledo. Gov. Lausche said the law already has been challenged unsuccessfully in two cases before the Ohio Supreme Court, and he has no doubt of the outcome.

Meanwhile, Kurt Orban Co., importer of foreign steel, has offered to supply at least a part of the steel needed next year for turnpike construction. The project has been turned down on its request for allotments of 72,180 tons of domestic steel from the National Production Authority.

• **New York**—As plans to use state credit to back Thruway Authority bonds were approved at the polls (see story on page 29), the State Public Works Department also disclosed top-priority plans for reconstruction of Route 17 across the southern part of the state. To be called the "Quickway", it will be comparable to the Thruway across the north of the State, and will extend from Binghamton to connect with the Thruway at Harriman.

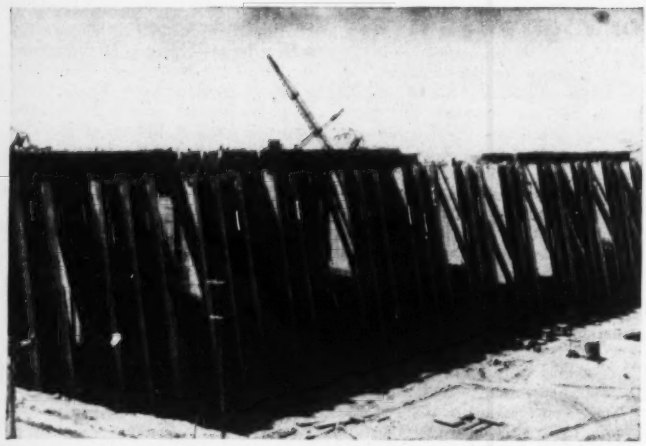
• **New Jersey**—Opening of the second section of the New Jersey Turnpike—a 56-mi stretch from Bordentown, N. J. to Newark—will make completion this week of 109 mi of the 188-mi toll highway from Delaware Memorial Bridge to a connection with George Washington Bridge in New York.

Traffic for the first five days over the 53-mi southern section from Delaware Memorial Bridge to Bordentown, N. J. nearly equaled Coverdale & Colpitts' estimate for the entire route. Cars and trucks totaled 26,253, averaging better than 5,000 a day against the estimate for the entire route of 5,960.

AFL engineers' union asks pay rule change

The American Federation of Technical Engineers last week proposed that Defense Mobilizer Wilson set up a special study committee to help stabilize the profession by upgrading present engineers, minimizing "pirating" and make greater use of trained personnel.

TOO MANY CURVES—Sixty-four curves are eliminated by the five-mile relocation of a section of route U. S. 21 between Ripley and Fairplain, West Va. Fairplain is the northern terminus of the proposed 120-mi West Virginia Turnpike from Bluefield. U. S. 21 continuing north from Fairplain to Parkersburg will be of similar construction to the superhighway. Dotted lines show the old route compared to the new one.



FORT RANDALL DAM TAKES SHAPE—Giant walls of concrete, high as a 15-story office building, form the intake structure at the Fort Randall Dam being constructed on the Missouri River as part of the Pick-Sloan Missouri Basin development program. Water eventually will be diverted into this structure, where gates will control the flow into 12 tunnels. The 193,000 cu yd of concrete which have gone into the intake structure are enough to pave 74 miles of 2-lane highway. (Wide World photo.)

Missouri River Basin moves ahead as two big dams reach halfway mark

Dollarwise, the Corps of Engineers has received a congressional green light for expediting its multi-million-dollar part of the Pick-Sloan plan for development of the Missouri River Basin.

Constructionwise, two significant milestones are imminent: Both Garrison and Fort Randall Dams are nearing the half-way mark in their completion; while a $15,339,000 contract was awarded on Oct. 25 to Peter Kiewit Sons' Co. and Morrison-Knudsen Co. for Stage 4 embankment (including closure) at Garrison Dam.

Planningwise, initial construction will get underway next spring on Gavins Point Dam, near Yanktown, S. D.; a second large excavation and embankment contract will be awarded on Oahe Dam near Pierre, S. D.; and planning studies will be made for Tuttle Creek Dam near Manhattan, Kan.; which is the focal flood-storage point for protection of the Kansas River Valley.

• **Scope**—Of the $597-million appropriation approved last month for Army civil functions (ENR Oct. 25, p. 24) $91,008,000 was earmarked for flood control and river development in the Missouri River Basin during the current fiscal year which will end June 30, 1952.

As outlined early this month by Brig. Gen. D. G. Shingler, Missouri River Division Engineer, these funds will materially advance Garrison and Fort Randall; complete Harlan County Dam in southern Nebraska; and expedite eight other major projects in the basin.

Nearly 80% of the $91 million appropriated goes to Garrison and Fort Randall which will receive $37,083,700 and $34,699,000, respectively. These sizeable appropriations are a "must" from the standpoint of orderly and economical construction, as well as keeping up with the construction timetables.

• **More power**—But more importantly, the accent is on the development of hydroelectric power; as it has been since the start of the Korean war. And these two projects have a combined initial hydroelectric power capacity of 400,000 kw; and an ultimate of 720,000 kw.

Funds appropriated for other Missouri River Basin projects of the Corps of Engineers, for fiscal 1952 are: Channel stabilization and navigation improvement from Sioux City to the mouth of the Missouri, $6.3 million; local flood protection at the Kansas Citys, $4.5 million; Oahe reservoir, $3,770,000; agricultural levees, $2,312,000; Harlan County reservoir, $1 million; Fort Peck Dam, $944,000; and Fall River Basin, S. D., $400,000.

Closure of Fort Randall, possibly by a hydraulically placed chalk fill, is scheduled for next July. Its construction tempo has been stepped up to a point where, barring shortage of materials, initial hydroelectric power is scheduled to be placed on the line in November 1953; which would make it six months ahead of the original schedule.

• **New start**—One of the most significant items in the fiscal 1952 appropriations is the $2 million to start construction of Gavins Point Dam. Actually, Congress specified that these funds be transferred from those which have been appropriated for Fort Randall.

This decision was based on the close functional relationship of the two dams. Gavins Point Dam, with a power potential of only 100,000 kw, will serve primarily as a regulating structure to smooth the discharges from Fort Randall. Thus, the highly desirable peaking of the full power potential at Fort Randall dam can not be attained until Gavins Point dam is completed.

• **Activity**—Calendar year 1951 was a busy year, constructionwise, at Garrison, Fort Randall and Oahe. At Garrison, the contractor placed 115,500 cu yd of concrete, excavated 6,085,000 cu yd of material, and placed 4,640,000 cu yd of embankment.

At Fort Randall the contractors placed 150,000 cu yd of concrete to virtually complete the intake structure and powerhouse substructure; moved 1,955,000 cu yd of excavation by land equipment; and completed 2,352,000 cu yd of dredging in the approach and outlet channels. At Oahe Dam, the contractor moved 5 million cu yd of excavation, advancing Stage 1 embankment to 70% completed.

Damages and flow listed for Midwest's floods

KANSAS CITY—After 8,000 man-days of paper work, the U. S. Army Corps of Engineers has determined that the overall loss from the floods in the Kaw River Basin in Kansas last July was $725,066,000. The maximum discharge of the river at the mouth at Kansas City was 510,000 cu ft per sec, nearly double the previous record discharge of 260,000 cu ft per sec in 1903.

These figures are given a 21-page report compiled by the Kansas City District of the Corps of Engineers. The report also reveals that a $32,762,000 loss was sustained in the Marais des Cygnes-Osage Basin, as well as damages of $112,415,000 in the part of the Missouri Basin from Rulo, Neb. to the mouth.

This brings the total loss figures to $870,243,000 of which $363 million was accounted for by damages in the two Kansas Citys. Losses in the Arkansas River Basin during the same flood period are not covered by the report.

$1 billion voted for new construction

NEW YORK—State voters last week centered nationwide interest on their state when they voted a resounding "Yes" on two propositions that may involve more than a billion dollars worth of construction.

They approved two amendments to the state constitution:

(1) No. 4, permitting the state legislature to back with the state's credit issuance of $500 million in bonds to finance construction of the 540-mile New York City-Buffalo Thruway;

(2) No. 6, permitting New York City to go outside its legal debt limit to build a $500-million subway on Second Ave. in the borough of Manhattan.

• **City credit**—No. 6 also permits the city to use state aid funds to pay interest and amortization on schools borrowing. This will provide almost $40 million more in available city cash for school construction. And it also permits other cities to borrow outside their debt limits for self-liquidating projects, such as parking garages; and to raise taxes beyond legal limits to take care of the financing of pay-as-you-go projects.

New York's Second Ave. subway has been long advocated by city officials as the only proper solution for transit difficulties in the far-flung Borough of Queens—across the East River from Manhattan. Transit experts have thus opposed much further expansion of the comparatively few rapid-transit lines in Queens on the ground that existing lines in Manhattan (where all lines converge) could not handle the additional traffic.

The Second Ave. lines which are contemplated would have connections that might eliminate bottlenecks in present connections to The Bronx and other sections of the city. (ENR Sept. 20, p. 24.)

Construction of this line would also permit complete demolition of the last of the city's antiquated elevated lines—the Third Ave. line—which now serves the eastern section of Manhattan.

• **Thruway green light**—Approval of state backing for the bonds of the Thruway is a milestone in the long battle by the state to build the superhighway.

Originally proposed to be financed on its own revenue-producing abilities, the 540-mile road plan ran into almost immediate trouble when it became apparent that backers could not expect low interest rates unless the state's credit backed the bonds. (Governor Thomas E. Dewey originally opposed use of state credit on the ground that such use would reverse an aim of his administration—the reduction of the state's debt.)

Nevertheless, the road was started in the spring of 1946, and has been under construction in relatively small sections since that time, with state funds.

Opponents of use of the state's credit criticized the project as financially unsound, and argued that the state should issue the bonds (if at all) directly, rather than (as proposed in the amendment) through the Thruway Authority, in order to save interest.

Proponents stressed the advantages to the state of the construction of the highway, and added that freeing of funds independently of state tax resources would make more money available for use by cities in their road plans.

Public housing spurred in East and Midwest

Four additional public housing projects were approved recently for Chicago by the Housing and Home Financing Agency. They will contain 6,072 units and cost an estimated $60 million. Acquisition of the sites in slum areas is expected to start before the end of the year.

Other public housing news of the week was concerned with financial moves.

In the public market this week, the State of Connecticut borrowed $45 million on housing notes due on April 20, 1952. The National City Bank was awarded the biggest share of the notes at rates ranging from 1.09 per cent to 1.11 per cent.

The New York Housing Authority also entered the financial picture this week by announcing it will take bids on $16.9 million of notes. The money will be used to finance three state-aided low-rent projects and to retire notes outstanding. Projects affected by the financing include the Redfern Houses in Queens, the Carver Houses in Manhattan and Forest Houses in the Bronx.

• **New proposal**—New York City's Housing Authority announced a proposal to build a 1,536-unit federally aided low-rent slum clearance project adjoining the cooperative Morningside-Manhattanville project in upper West Side New York.

To cost an estimated $23 million, it would form a coordinated plan for rehabilitation of the upper Morningside Heights neighborhood. Together, the two projects would redevelop about 25 acres of slums.

Frank T. Sheets

Frank T. Sheets dies, ends distinguished career

CHICAGO—Frank T. Sheets, president of the Portland Cement Association and former chief engineer of the Illinois Highway department, died here last week at the age of 61.

With the Portland Cement Association since 1933, Mr. Sheets had been the organization's consulting engineer and director of development. The association is a testing and research agency in the cement industry. Mr. Sheets became its president in 1937.

Before then he was with the Illinois Highway department for 23 years. The last twelve of those years he served as superintendent of highways and chief engineer.

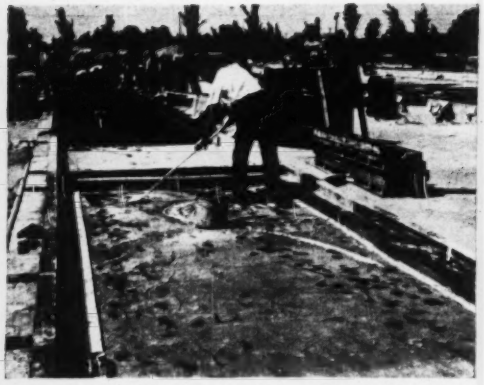
During his career, he also served as president of the American Association of State Highway officials, of the Mississippi Valley Highway Conference and of the Central Illinois section of the American Society of Civil Engineers.

New command formed

WASHINGTON—A new Division of the Army Engineers has been formed to supervise almost all military construction in the Atlantic and European areas.

Chief Engineer Lt. Gen. Lewis A. Pick said the new headquarters, known as East Ocean Division, will operate from Richmond, Va., starting Nov. 15. Brig. Gen. Robert G. Lovett will be the Division's first commander.

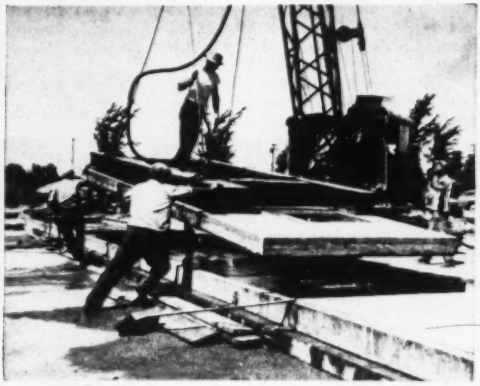
Districts in the Middle East, Northeastern Europe, the East Atlantic and Islands of the Atlantic will come under the jurisdiction of the new Division.



1 CASTING BED—one of eight for prefabricating walls—is cleaned and mopped with a plastic parting agent before . . .

2 CONCRETE is poured for the 4-in. steel-reinforced outer face of three-layer wall panels. Before it sets . . .

5 FORMS are stripped, sides and bulkheads being moved only a short distance, and . . .



6 CRANE removes panel from the forms with a vacuum mat. Transported in vertical racks on trailers to the site . . .

Houses closed in fast with precast walls

MASS-PRODUCTION METHODS for manufacturing wall and floor units are speeding construction of a housing development at Great Lakes Naval Training Station, Chicago. Buildings containing as many as four dwelling units are being completed at a rate of about one a day.

Floors and roofs are hollow precast concrete slabs. Supplied long enough to span the width of the structures, the slabs are supported on the walls.

These load-bearing building exteriors are large-size panels of sandwich construction, 8 in. thick. Prefabricated near the site, they consist of an inner and outer facing of reinforced concrete and a core of cellular-glass insulation blocks. These walls have an over-all coefficient of heat transmission of 0.198.

• **Big development**—The project, known as Forrestal Village, will consist of 318 one and two-story buildings, plus garage space for 348 cars. To house essential naval personnel, it is being built on land leased from the government for 75 years by Corbetta-Price Co., Inc., under Title 8 of the Wherry Act. It will cost $8,600,000. Rents will be low—about $20 per room.

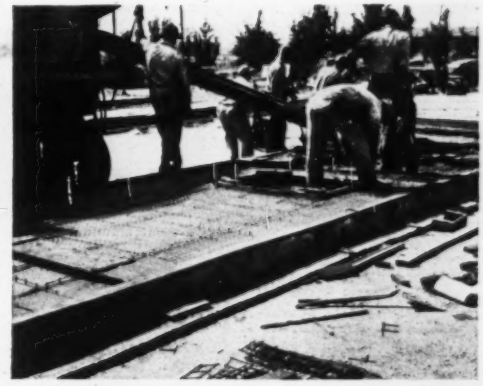
The buildings, of which there are ten different types, will contain 1,000 dwelling units, with a total of 4,690 rooms. Dwelling units vary in size from three and one-half to six rooms. From one to four units will comprise a building.

• **Wall forms**—Concrete for these structures is precast in two yards, the floor and roof units in one about a mile from the site and the walls in one about ¼ mi from the site.

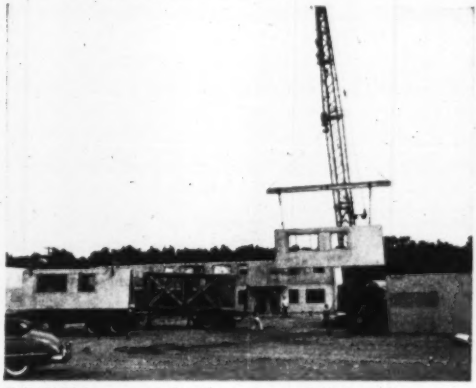
The wall casting yard was designed to turn out daily all the wall elements for a four-unit house. It contains eight rows of casting beds, each 10 ft wide and 300 ft long. On successive re-uses of a bed, 17 wall units may be fabricated for one type of house, compared with 26 units for another type. The maximum area of wall that any two beds (one day's production) can accommodate is about 5,700 sq ft. Average production is close to 4,200 sq ft per day.

Casting beds have a concrete base in which 2x4-in. nailing strips were embedded. The base is covered with plywood, which is nailed to the 2x4's. To date, the plywood generally has with-

3 INSULATION BLOCKS made of cellular glass are placed on it and wire shear ties embedded. Next . . .



4 REINFORCING STEEL is placed and concrete poured for the 2½-in. face of the wall panels. After 3 days . . .



7 PANELS are erected with a crane and tied together and to precast floors by welding embedded plates.

8 ASSEMBLED, they form 318 houses at Great Lakes Naval Training Station. (Pittsburgh-Corning photos.)

stood repeated re-use without need for replacement. Form sides are concrete.

• **Wall production**—Fabrication of wall elements begins with cleaning the beds and mopping them with a plastic parting agent, to prevent concrete from sticking to the forms. Next, 4x4-in. No. 9 reinforcing mesh and frames for windows, doors and kitchen fan are inserted in the forms. Also, lifting hooks for erecting the panels and steel plates for welding adjacent building components together are placed along the panel borders.

Concrete for the outer facing is placed to a depth of 4 in. Mixed in transit, it has a minimum 28-day strength of 4,000 psi. It is made with 6¾ bags of high early strength cement per cu yd and pea-gravel aggregate.

After the concrete is vibrated and screeded, 1½-in. thick insulation blocks are set on top. Shear ties—4-in. wide strips of 4x4-in. No. 9 wire mesh—are inserted between transverse rows of blocks and embedded about an inch in the concrete.

Next, a precut sheet of 2x2-in. No. 10 mesh, reinforcement for the inner face of the wall, is placed over the blocks and tied to the shear ties with wire. Then, the second layer of concrete, 2½ in. thick is cast. Vibrated, screeded and hand-floated, it is given a broom finish over most of the surface. For contrast, areas surrounding windows are steel trowelled, and designs are imprinted in some panels.

Covered with waterproof paper, the wall units are left in the forms to cure for three days. At the end of that time, the form sides and bulkheads are moved slightly apart and the panels are removed with a vacuum lifting mat.

They are placed directly in a vertical rack on a trailer for transport to the construction site. Each trailer carries two wall units, which may weigh 6 to 7 tons each. It takes about 11 min to pick up two wall units and set them on a trailer.

At the site, a crane picks up the units by the lifting hooks and erects them. Until each building is completely assembled, the walls are held in place by steel braces adjusted with turnbuckles.

After the precast floors and roof units are erected, steel plates cast in the panel edges are welded to plates in adjoining units and to steel lugs embedded in the floors and roof units, to tie the structure together. Then, all joints are calked. Finally, the dwellings are fitted with partitions, plumbing and electrical fixtures and the interiors are painted.

The project, which is scheduled for completion next February, was designed by Shaw, Metz & Dolio. Corbetta-Price Co., Inc., the owner and builder, is a joint venture of Corbetta Construction Co. of New York City, and Price Brothers of Dayton, Ohio.

Rock is scarce; bagged concrete makes good riprap

Special dump body fills bags

A DUMP BODY that tilted to become three hoppers was the tool for efficient materials handling last summer on a bagged-concrete riprap job.

Invention of the special body was mothered by the necessity for this unusual work.

Part of the Corning relocation project, described on the next page, the task was to place 56,500 sq yd of bank protection along the Chemung River. Rock suitable for ordinary riprap was not available near the site, so New York State engineers sought a substitute that would cost less than imported rock. The economic substitute turned out to be bagged concrete, which the state had used in similar situations since 1926.

(ENGINEERING NEWS-RECORD's files reveal only one other use of bagged-concrete riprap—on a 1947 highway job in California. But New York State engineers say Army engineers also have used it on flood-control projects in that state.)

• **Material handling problem**—With little of their own experience to go on, the Corning relocation's general contractor, the Lane Const. Corp., bid the riprap at $5 a square yard, then attacked the problem of getting the riprap into place as efficiently as possible.

Most important objective was to handle sacked concrete as little as possible. This way, the labor cost would be least. The best way to reduce sackhandling was to fill sacks right on the slope.

This is where the special body came in. Taking three 1-yd batches of concrete from a 27-E mixer, the truck could go directly to the slope (several areas were to be riprapped), there filling the sacks that men would lay in place.

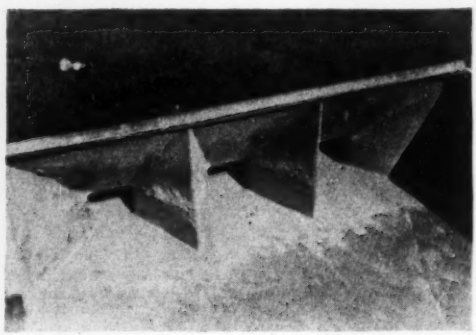
• **The dump body**—built on a long-wheelbase 1½-ton truck, the body pivoted 2 ft back of rear-axle position. Instead of a tailgate, the body had a fixed tail bulkhead set 45 deg from the normal position. Additional plates combined with the bed and tail bulkhead to form three hoppers. Hopper outlets had radial gates. Beneath the gates were bag-holders made of strap iron. Spring-loaded, these holders fitted inside the mouths of bags and kept them open.

In the dumping position, holder height was such that bag bottoms rested on the ground. The bags were old cement sacks.

To make a piece of bagged-concrete riprap a man put a cement sack on the holder, filled it by opening the gate, then detached the bag and passed it to another man for closing. The second man folded the top over and wire-stapled it several times with a heavy-duty tool similar in principle to an ordinary office stapler.

• **How riprap was placed**—Concrete in the bags was a barely-moist (15 gal. to a 7-bag batch) 1:2½:5 mix. A bag held 1 cu ft, which made a two-man load. From the truck, bags were rolled down the 1 on 2 slope. (Maximum slope distance was 50 ft; chutes were tried, but bags went too fast, some of them breaking up.) Then pairs of men placed them in a pattern resembling that of standard brick bond, with long dimensions horizontal. About seven bags covered a square yard. Pneumatic tampers compacted the bags to 9-in. thickness, then men drove ⅝-in. dowels 6 ft long down-slope through the bags. Dowel spacing was

BAG LOADER—Special dump truck body has three outlets in tail bulkhead. Beneath outlets, strap iron holders keep bags open during filling. (ENR photo)



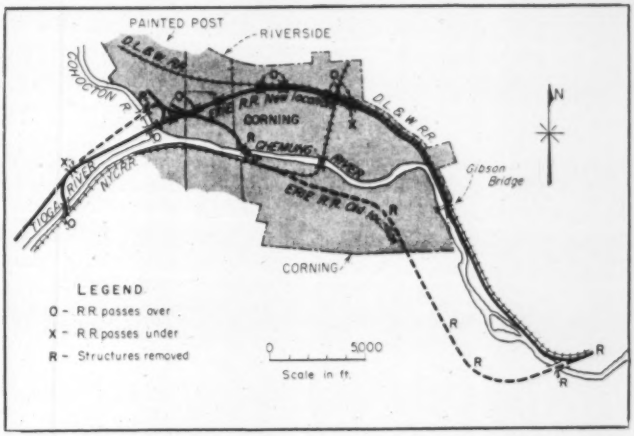
TRIPLE HOPPER—Plates welded between dump body bed and tail bulkhead form hoppers for easy flow of concrete to bag-loading outlet. (ENR photo)

16 in., with 12-in. minimum gap between adjacent dowels. The effect was to place two dowels in every bag. The final operation was to wet the bags liberally with the spray from a garden hose.

Although cement sacks were used, burlap bags were acceptable. In fact, they were specified on the supposition that the stronger cement sacks would be unobtainable. (Cement sacks had been used on the previous job.) The contractor, however, found a supply of old cement sacks that were easier to get than the burlap.

Bagged riprap was placed at about 6 sq yd, or 4000 bags per day. One 27E mixer, three special dump trucks and 35 men (two crews at different slope locations) maintained this rate of progress when riprapping operations were at their peak.

For The Lane Const. Corp., G. D. Helmer is project manager.



PLAN FOR RELOCATION—Still on old location, Erie trains pass through Corning mostly at grade. New route (solid line) will have grade separations throughout.

The Corning railroad relocation

The spectacle of a main-line train high-balling down the middle of the street will disappear from one more U. S. city when the State of New York completes its grade-crossing elimination in Corning.

In this western New York city, famous for its glass making, the Erie Railroad has for a hundred years been operating at grade along six blocks of right-of-way shared with street traffic. The line crosses twelve Corning streets at grade.

By the end of 1952 all of this will be changed, thanks to the state's project.

Unlike many grade elimination jobs, this one does not simply raise or depress the tracks, separating the grades in existing locations. It moves the Erie to a brand-new grade-separated location. Instead of running through the heart of Corning, the Erie will loop through the north side of town, paralleling the present Delaware, Lackawanna and Western Railroad tracks for much of their length (see drawing).

Overall length of the new location is 8.2 miles. Its cost is about $11,000,000, including engineering. The general contract with The Lane Const. Corp. amounts to $7,806,000 and force account by the railroads is: Erie, $1,922,000, D. L. & W., $238,000, and the New York Central Railroad, $240,000.

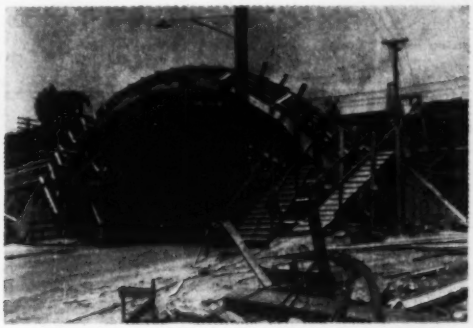
The New York Central's tracks cross under the relocation at one point and connect with it at another. In general, force account work includes track work above the subgrade, track removal and signal work. The state reimburses the railroads for their expenses in the first instance.

The general contract includes: two million cubic yards of earth work; 22 bridges and 3 pedestrian underpasses, plus drainage structures; work on 4 buildings; removal of 7 Erie bridges and 3 others; and demolition or relocation of almost 150 buildings (now complete).

Biggest relocation job was moving the D. L. & W passenger station 1600 ft., turning it and placing it on the opposite side of the tracks. All moving was handled by E. W. La Plante Co., of Indianapolis, on a subcontract with Lane.

Earthwork included 316,000 cu yd of special levee material. This is used in revamping existing U. S. engineer flood protection works for Corning and surrounding towns. Part of the bagged-concrete riprap described in

THERE'LL BE NO MORE ERIE on East Erie Street when relocation is complete. Six crossings will be eliminated from this street alone. (NYDPW photo)



RAILROAD WILL MOVE to high-grade location in north part of town. This is one of several grade separations in new location. (NYDPW photos)

the previous article is on these levees.

Among the bridges are a 683-ft 9-span I-beam viaduct; a 365-ft, 5-span plate girder bridge (Cutler Creek); a 571-ft, 6-span plate girder bridge (Cohocton River); and a 694-ft, 6-span girder bridge (New York Central connection across the Tioga).

Most of the shorter structures have one or more plate-girder spans, although there are two reinforced concrete arches and some lesser types. American Bridge Co. is furnishing steel for the superstructures.

In addition to getting the Erie off Corning's streets, the relocation puts three Lackawanna crossings above street grade. Streets at other Lackawanna grade crossings have been blocked off.

Biggest new building is a $253,000 Erie passenger station. Other building items are work on the relocated D. L. & W station, a temporary D. L. & W. station, and a new Erie freight house. Subcontractor on this work is Bouley Co., Auburn, N. Y.

The general contract was awarded in May, 1950. At the end of September, 1951, progress was estimated at 62%, toward December, 1952, completion.

The Corning relocation job is part of a larger arterial plan for Corning. Previously Gibson Bridge, across the Chemung River east of town, was built as part of the plan, and more work in the city is contemplated for completion of the plan.

For the New York State Department of Public Works, division of construction, E. W. Wendell is deputy chief engineer in charge of bridges, grade separations and structures. H. F. Brumm is district engineer at Hornell, the officer responsible for the field work. Waldo F. Bishop is project engineer.

Costs favor sludge concentration for Pittsburgh

SPEAKING at the recent Public Works Congress in Detroit, John F. Laboon, chairman and chief engineer of the Allegheny County Sanitary Authority, Pittsburgh, presented a comparative analysis of sludge disposal costs.

For the purpose of analysis he classified plant types as indicated at the right, according to capacity and process. In all cases, it is assumed a 50 percent BOD reduction and 70 percent removal of solids is to be obtained.

In Table I are presented construction costs (1950 prices) of the various sludge disposal methods per ton of dry solids removed daily. Table II presents annual costs of sludge disposal per dry ton by the various means listed (incineration is figured at Pittsburgh fuel costs).

It will be noted that disposal methods B and C in the listing involve concentration of sludge. This is Mr. Laboon's own process, described in ENR Oct. 11, p. 30, and incorporated in the treatment works his authority now has under design.

Costs for type C designs are predicated on concentration to 12 percent solids, then digestion in tanks of 50 percent the capacity normally required.

In his analysis Mr. Laboon calls dumping of sludge at sea the most expensive disposal method. As evidence he quotes the following cost figures: 18 cents per wet ton for the city of New York in 1948; and at 1940 prices, 19.44 cents per wet ton for Newark, N. J., 32 cents for Elizabeth, N. J.

CLASSIFICATION OF PLANTS

1-MGD PRIMARY SEWAGE TREATMENT PLANT

Type 1-A Digestion and open bed drying
1-B Concentration and incineration of raw sludge
1-C Concentration, digestion and open bed drying

2-MGD PRIMARY SEWAGE TREATMENT PLANT

2-A Digestion and open bed drying
2-B Concentration and incineration of raw sludge
2-C Concentration, digestion and open bed drying

10-MGD PRIMARY SEWAGE TREATMENT PLANT

10-A Digestion and open bed drying
10-B Concentration and incineration of raw sludge
10-C Concentration, digestion and open bed drying
10-D Digestion, filtration and incineration
10-E Filtration and incineration

40-MGD PRIMARY SEWAGE TREATMENT PLANT

40-B Concentration and incineration of raw sludge
40-D Digestion, filtration and incineration (without power generation)
40-E Filtration and incineration

150-MGD PRIMARY SEWAGE TREATMENT PLANT

150-B Concentration and incineration of raw sludge
150-D Digestion, filtration and incineration (with and without power generation)
150-E Filtration and incineration

TABLE I

Cost of Construction of Sludge Disposal Facilities Per Ton of Dry Solids Removed Daily

Plant Capacity in mgd.	Type of Sludge Disposal A	B	C	D	E
1	$84,000	$72,500	$72,500		
2	81,000	66,500	60,000		
10	54,600	43,800	43,000	$58,800	$44,400
40		34,500		56,500	32,700
150		33,000		49,500	30,500
* With Power Generation.				67,500*	

TABLE II

Annual Cost of Sludge Disposal Per Dry Ton

(Fixed Charges plus Operating Costs)

Plant Capacity in mgd.	Type of Sludge Disposal A	B	C	D	E
1	$27.50	$26.30	$36.30		
2	20.50	17.50	23.20		
10	17.10	14.00	17.10	$20.50	$15.80
40		9.40		14.70	12.00
150		8.65		12.80	10.80

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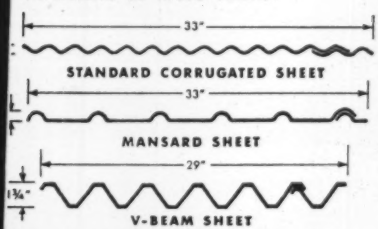
A steel sheet to which asbestos felt is metallically bonded. Then the felt is impregnated with asphalt and waterproofed. Tested and approved by Underwriters' Laboratories, Inc., Chicago, and by Associated Factory Mutual Fire Ins. Co., of Boston. Galbestos metal comes in maroon, black or aluminum color and is fabricated in various shapes. It has been architecturally well designed into thousands of installations all over the world.

• Galbestos metal for defense plant construction provides a wall resistant to fire, corrosion and blast. It can be well designed, worthy of permanent structures. It is maintenance-free. And, whether you want a mere skin, with or without insulation or panels, the Robertson method enables you to build faster with Galbestos metal than with any other material.

Available in these forms:

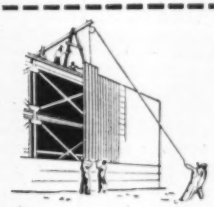


THE TOP-SPEED FASTENING METHOD

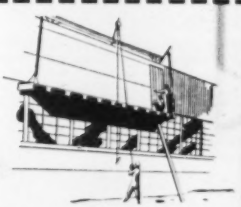
permits all fastening work from the outside, eliminates interior scaffolding. This new method permits erection crews to place twice as much material in the same time, with safety. Top-Speed Insulation is a Robertson method for applying insulation from the outside, before the Galbestos is fastened over it. This method also halves the time. It makes a good-looking job inside. Needs no painting.

WRITE FOR COMPLETE LINE OF CATALOGS

1. GALBESTOS
2. TOP SPEED FASTENING
3. Q-PANELS (STANDARD)
4. Q-PANELS (G-TYPE)



◀ Q-PANEL (STANDARD) OR Q-PANEL ▶ (G-TYPE)



Q-Panels are the famous Robertson factory-fabricated, insulated curtain wall. They are available in a variety of fluted metal surfaces. Available 2' wide, in lengths up to 25', lightweight, only 3¼" thick, but superior in insulation value to a 12" masonry wall with furred plaster. A small crew can erect a Q-Panel—50 sq. feet—in 9 minutes.

G-type Q-Panels are the field-assembled insulated curtain wall: a flat interior steel sheet with insulation, and a formed Galbestos metal exterior in one of the shapes shown above. This is recommended for attractive, economical industrial jobs where insulation is required.

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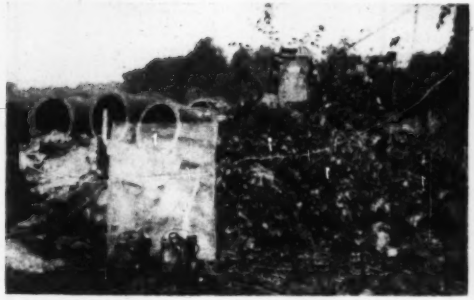
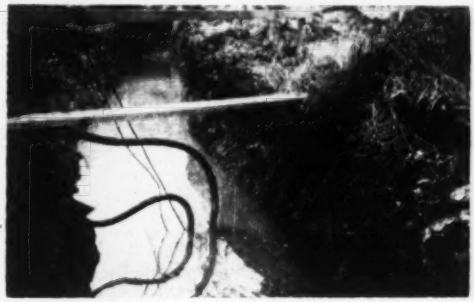
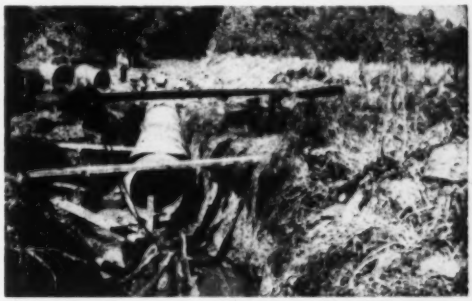


1. TWO UTILITY PUMPS with hermetically sealed electric motors, placed inside of a job-made heavy cylindrical screen . . .

2. WERE LOWERED into a slag-filled sump at the lower end of a flooded sewer trench in swampy ground, where . . .



3. THEY OPERATED under water, night and day for 25 days, with each discharging up to 3,300-gph under a 10-ft head . . .



4. TO PERMIT installation of the 30-in. sewer in the dry. (Photos by Kenco, Inc., Lorain, Ohio)

Submersible electric pumps conquer tough drainage job

WHAT TO DO when a drainage-pump failure threatens to halt a sewer construction job in a swampy area? This was the situation facing the contractor on a housing project in Stamford, Conn., when a heavy-duty 4-in. gasoline pump used to drain the excavated trench suddenly failed and could not be expeditiously repaired.

• **Not a big job**—The project was not a large one, as sewer jobs go. It entailed the installation of 1,500 ft of 30-in. ID clay tile pipe, at a contract price of $44,000. Completion date was scheduled for Nov. 1 of this year.

The completed sewer, which will serve 492 families, initially, connects a collector main with a pumping station, which pumps the sewage to a treatment plant.

A 6-in. pump, powered by a three-phase 7½-hp motor was available, but it required a 220-v power source which was located 2,000 ft from the trench. It would have cost $1,500 to run this 220-v power line to the pump site, in addition to the delay caused by the process of building it.

Faced with these time and cost factors the contractor purchased two fully-automatic submersible pumps that solved his drainage problems. They operated on 110-v current which was available in a field house only 250-ft away.

• **Built for underwater work**—In addition to being compact (50-lb weight, each) the pumps could operate continuously under water due to an exclusive switch construction and the fact that their ½-hp motors are hermetically sealed and run in oil.

A small sump was dug at the lowest point of the ditch and partially backfilled with slag. A basket was made-up on the job to protect the pumps under water. It had a heavy cylindrical screen to keep out rocks and other foreign matter, and 2x12-in. planks on the bottom to prevent the motor switches from sinking into the slag and mud.

The pumps were placed in the basket and lowered into the sump. Both pumps operated almost continually 24-hr per day for 25 days until the 30-in. clay tile pipe was installed and the trench had been backfilled.

Each pump had a capacity of 3,300-gph under a 10-ft head, discharging through a 2-in. hose. Since they were fully automatic, they operated all night, if necessary, enabling workmen to continue pipe-laying the following morning in a dry trench, even after hard rains.

• **Pumps could "take it"**—One feature of the pumps was their ability to withstand adverse operating conditions. For example, during the construction of this project bulldozers and draglines inadvertently buried both pumps. They were discovered and dug out 36-hr later. Although their impellers were jammed and the motors were still running in a stalled position, drawing six times the normal amperage, there was no damage from overheating. In fact, the pumps and motors were restored to good running order as soon as the impellers were freed of silt.

Peter Mitchell, Inc., Greenwich, Conn., was the general contractor on this project. John Wakenigg was the construction superintendent.

TUNNEL—A 30-year-old truck-loading tunnel once used in sand and gravel operations has doors cut in its side.

Waste works project exemplifies "waste not want not" proverb

A WORKED-OUT sand and gravel property was bought as a sewage works site for suburban Port Washington, N. Y. A half-buried concrete tunnel once used for loading trucks went with it.

With the treatment plant now nearing completion, the fortress-like tunnel is still in place. Port Washington's frugal consultant, Clarence MacCallum, balked at spending $60,000 to demolish it—converted it instead to a building.

The same kind of careful planning has one of this Long Island community's overworked Imhoff tanks destined for conversion to a pumping station that will push a portion of its sewage to the new treatment facilities.

• **White elephant to work**—The massive 205-ft-long loading tunnel, through which trucks used to pass beneath aggregate hoppers, sits just off and parallel to Mill Pond Road—right where the plant administration building would most logically go. The natural thing would have been to remove it. But instead, a renovation job has made it an unorthodox, but sufficiently functional, 2,300-sq ft building to house the plant's control room, laboratory, chlorination equipment, locker room, boiler room, water well, shop and garage.

When the contractor—Suburban Engineering Co., New York—went to work on the 30-year-old concrete tunnel, it was found an extremely sound (but crudely formed) structure with 18-in. thick vertical walls topped by an arch roof 16 in. thick over most of its length. It transforms to a flat-roof section for about 40 ft at one end.

Form work had been so crudely constructed as to leave the roughest of unfinished surfaces inside and out. Reinforcing steel had been used with extravagance, but without apparent design—an assortment of rods in either direction having been placed in the walls as they were poured. Except for the portal at either end, the only openings the tube had were 23 rectangular holes formed in the roof (variously 1½ to 2 ft square) through which aggregate would pour from storage hopper to loading truck.

The true nature of the structure's strength was found when the contractor started to cut doors through its thick, heavily reinforced walls. The torch was kept busy in order to cut and burn through.

• **New role, new look**—Inside, the ridges and stalactites formed on the rough existing surfaces were knocked off prior to application of a 1-in. layer of pneumatically placed mortar. A smooth finish was thus attained which will be painted directly.

The floor was given a new 2-in. minimum concrete finish with built-in provisions for drainage, plumbing, and founding of equipment to be installed. Heating, lighting, and water conduits will be overhead and exposed.

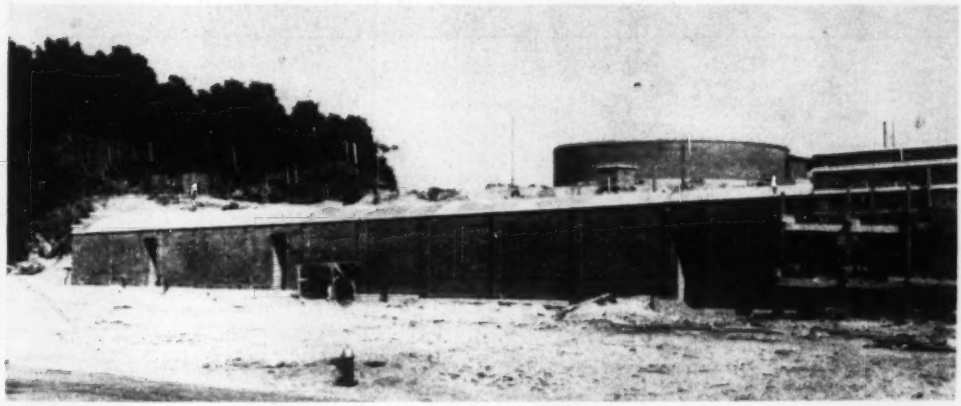
Hot water heaters (eight of them) will warm the building. Lighting will be artificial—twenty 4-tube fluorescent lights in all. Roof openings have had 18-in. dia ventilators installed over them, except for one opening over the boiler room. This will pass two 8 x 12-in. flues and mount a 3-ft square brick chimney.

The chlorine room will be at one end of the building where an access drive will reach an exterior delivery platform. In that end of the building is a 4 x 7-ft-wide rolling door and on the front of the chlorine room is another entrance. Accessible only from outdoors, this room is to be sealed off from the rest of the building with an 8-in. brick wall.

Similar brick partitions dividing other lengths of the elongated structure will have doors for ready movement from room to room.

Reading from the chlorine room there follow the control space, with its standby diesel generator set, and the laboratory and office—all in one room with an exterior door on the front of the building. Then comes the locker room, then the boiler room where burning sludge gas will produce heat for the building and the digesters. The rest of the building, with its third outside entrance, will house a well, pump, and 3,500-gal tank for domestic and other plant water supply; a shop; and a garage capable of admitting two normal vehicles, one behind the other, through a 9 x10-ft rolling door in that end of the building.

• **Hide multitude of sins**—Outside, the ugly old structure (built for service, not looks) has been put behind a neat red brick veneer. Brick facing is laid a varying distance (2 to 6 in.) out from



BECOMES BUILDING—Prettied up a bit, the massive old tube is to be a treatment plant administration building.

the old structure's uneven vertical surface and is tied back to it only at door openings and near the top of brickwork.

Brickwork in front of the arched length of old tunnel runs to above the springline of arch and is topped with precast concrete coping. At the springline, it is tied back to the old concrete with a filler of new concrete. This filler is lined with copper flashing, forming a gutter to carry rain off the front half of the roof. Copper drains through the brick lead to downspouts spaced each 30 ft along the building. A 5-ply, 20-year built-up roof covers the arch.

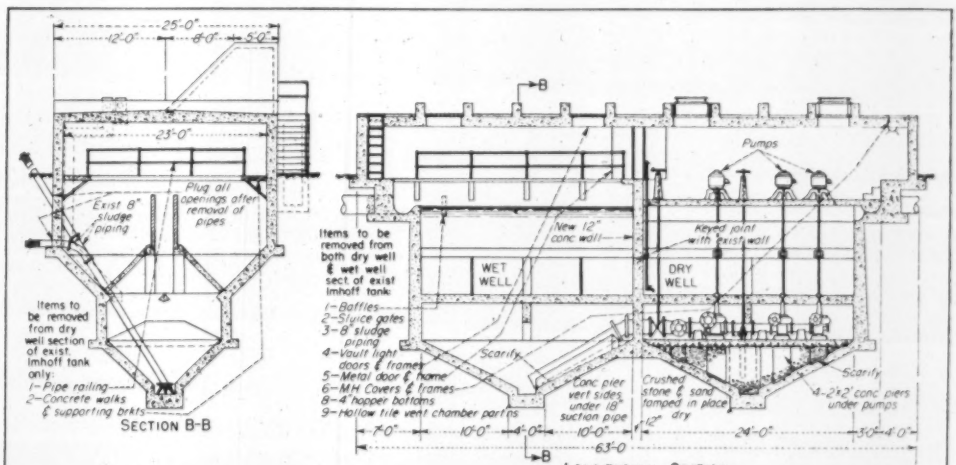
At the back side of arch-roofed building—away from the highway—built-up roofing is carried well down past the springline of arch and properly drained backfill is placed against the structure at the natural grade of the sloping ground.

The 40-ft length of rectangular section at the garage end of the tunnel-building is faced with brick all around and has a 1-ft, 6-in. high parapet wall on all four sides of its flat roof.

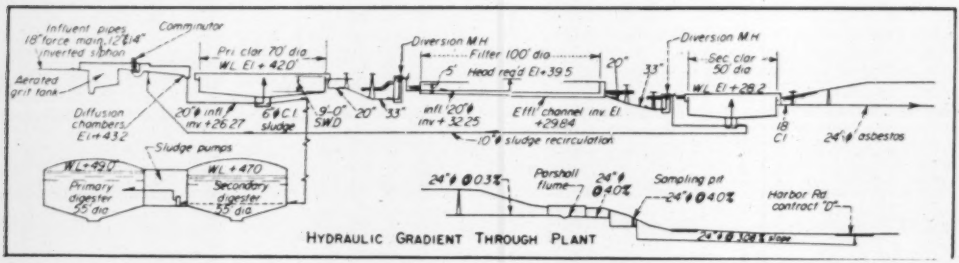
• **New use for old Imhoff**—Nearly a mile from the new treatment facilities stands Port Washington's present plant—two badly overworked Imhoff tanks, covered sludge drying beds and chlorine—adding up to dangerously inadequate treatment of effluent now entering Manhasset Bay and difficulty in handling a not fully digested sludge.

The older of the two old Imhoffs is due to be converted, when the new treatment plant is operating. It will become a pumping station to relay sewage entering it to the new plant via an 18-in. cast iron force main which crosses a corner of the bay for 600 ft of its length.

How the conversion is to be done is best seen in the accompanying drawing. Briefly, one of the tank's 23 x 24-ft compartments will become a wet well; the other will be a dry well. Baffles, piping, and hopper-bottoms that now make the structure function as an Imhoff tank will be removed from both compartments. A concrete beam-and-slab operating floor will be put over the dry well to carry three vertical centrifugal pumps—1,000, 1,250 and 1,850 gpm. Suction ends of



IMHOFF TANK BECOMES PUMPING STATION—Compartments of an overworked Imhoff tank will become wet and dry wells of new pumphouse.



FLOW THROUGH PLANT—Sewage will flow as shown in drawing through plant components described in table below.

PORT WASHINGTON PLANT DESIGN DATA

Designed 1950, **Built** 1951-52
Drainage Area—2,048 acres
Design Population—25,000 (1965)
Design Capacity—3 mgd
BOD Load (Raw)—258 ppm
Plant Description:

Grit Removal—Aerated grit chamber 10 x 16 x 12 ft.

Comminution—Total flow subject to grinding.

Primary Sedimentation—Two 70-ft dia tanks with 9-ft swd. Retention time 2.1 hr for 3 mgd, 1.5 mgd raw and 1.5 mgd recirculated. BOD removal 35%, 91 ppm or 2,260 lb/day.

Trickling Filters—Two high-rate filters, each 100 ft in dia, 5 ft deep, 0.18 acres, and 1,460 cu yd. Flow is 3 mgd, half recirculation. Dosing rate is 16.7 mg/acre/day, half raw. This is a BOD loading of 1.44 lb/cu yd/day.

Secondary Sedimentation—Two 50-ft tanks with 9-ft swd. Retention time 2.12 hr for 1.5 mgd raw flow. Overflow rate 765 gal/sq ft/day.

Chlorination—The 24-in. dia outfall 2,650 ft long affords a minimum 25.7 min retention at design flow and so it is used as chlorine contact tank. Estimated chlorine demand 12 ppm.

Sludge Handling—Two-stage digestion in 55-ft tanks with 21-ft side depth. Capacities total 101,390 cu ft or 4.1 cu ft/capita. Gas used for sludge heating. Digested sludge to be pumped to open drying bed and plowed into waste area as soil conditioner.

BOD Removal—Before chlorination, 38 ppm, 950 lb/day, or 77.2%. Chlorine should remove 24 ppm making final removal 94.6%.

these pumps and the 18-in. suction line through which they will draw sewage from the wet well will be based on a concrete floor slab poured in the dry well after its hopper bottom has been filled with crushed stone and sand.

The 24-in. outfall from this in-service Imhoff will be plugged with concrete and replaced by the 18-in. c.i. force main to the new plant.

• **New trunk to share load**—Present sewage flow through the old plant averages 1.3 mgd. Design flow for the new treatment works, figured for 1965, is 3.0 mgd. Only 0.6 mgd of this will reach the old plant-site and have to be pumped from there. A new interceptor is to be built to take some of flow from the existing trunk line in the southeast corner of town. This 21-in. vitrified clay interceptor will drain a sizable residential portion of Port Washington, then come into the new plant by gravity and via a 2,400-ft inverted siphon—12 in. and 14-in. asbestos concrete lines. The new interceptor will reach the plant from its east side; the force main will enter from the west.

Flow through the plant will be by gravity from the aerated grit chamber to the 24-in. vitrified clay outfall which will double as chlorine contact chamber (see accompanying table for details of plant components).

• **Dollar, and other, value**—Altogether, it's a million-dollar project. The new treatment plant and pumping station conversion are to cost $677,400. Sewer work will add another $190,000. Then there is the subaqueous length of force main, heating, electric work, and the water well. This last, a $4,000 item, is expected to earn its keep within three years; the plant would run up a $1,200 to $1,500 water bill annually if it had to buy from the local waterworks.

Manhasset Bay is Port Washington's principal asset. It is a beehive of small-boat activity throughout the sailing season. And it could be a bathing attraction. But the two old Imhoffs (vintages: 1916 and 1927) are passing wastes from 10,000 persons, while their combined capacity is good for only 6,100.

Present efficiency in removing suspended solids is down about 77%—44% removal instead of the 57%, more or less, that should be expected. BOD removal is but 22.5 %, whereas 35% should be expected for primary treatment. Low efficiencies demand use of 72,000 lb. of chlorine per year—twice what the requirement should be

The new plant, with its secondary treatment, is to remove 90% of BOD and will do Port Washington's part in making the Bay a place to swim once more.

John M. Pollock is chairman of the Port Washington Sewer District Commission. For the consultant, C. MacCallum, the resident engineer on the job is R. MacCallum. William T. Langan is project engineer and general superintendent for Suburban Engineering Co.

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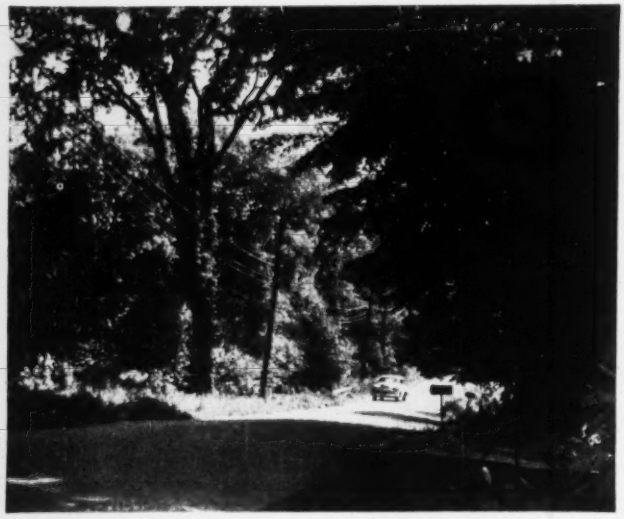

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READER COMMENT

APWA Nichols Award

Sir: I was pleased to see the announcement in your Oct. 11 issue p 68 of the first presentation of the American Public Works Association's Nichols Award, for I had noted its omission in the report of the convention (ENR Sept. 27 p 28).

This inauguration of a $500 annual prize for an employee of a municipality who has made an original contribution to the improvement of sanitation service should not, of course, pass unnoticed. Awards of this kind, which are not too numerous in the field of public service, not only provide recognition of accomplishment but they offer incentives for greater individual effort. The APWA is privileged to be in a position to make such an award.

First recipient of the award, as stated, was William A. Xanten, superintendent of the division of sanitation, District of Columbia, for his construction of a refuse transfer station incorporating a unique dust-and-odor control system (ENR Sept. 7, 1950). It may also be noted that honorary mention was accorded to N. M. Ulsch, director of public education of the Jacksonville (Fla.) health department for his conception and production of a technicolor picture "Your Street Cleaning Department".

The prize was established by Mr. Nichols, chairman of the board, Nichols Engineering and Research Corp., New York, whose career has been marked by originality in thought and effort directed toward improvement of the sanitary disposal of municipal wastes. The award recipients are selected by a committee of the association, which this year included James Morgan, commissioner of public improvements, Birmingham, W. O. Jones, city manager, Fort Worth, and the writer as chairman.

EDWARD J. CLEARY,
Executive Director and Chief Engineer, Ohio River Valley Water Sanitation Commission, Cincinnati, Ohio.

Alternate designs

Sir: The Structural Engineers Association of Northern California question seriously whether the practice of inviting contractor's alternate designs in competitive bidding is in the best public interest. ENR apparently feels that it is, judging by your editorial of September 27, 1951 entitled "Alternate Designs." The considerations in opposition are worthy of note:

1. In competitive bidding especially, the responsibility for design and construction should be kept separate. The owner's interest cannot be protected assuredly both in cost and quality of construction by placing both responsibilities in one hand.

2. In the short time available for bidding, a contractor cannot develop the equivalent of a full set of working drawings and specifications, and any alternate proposal is based on incomplete details. The evaluation of such proposals is difficult and the administration of construction contracts is sloppy and costly.

3. Even with a reasonable amount of detail of the alternate construction, it is extremely difficult to evaluate equitably the relative merits of one type of construction over another. Part of an apparent saving in an alternate design may be attributed to something less than specified quality construction. In the long run, this practice could only lead to inferior and inadequate construction.

4. Someone, in the final analysis, must pay for the multiplicity of designs, and with an engineer manpower shortage it does not seem to be in the public interest to divert the available manpower into duplication of effort, even under the cloak of an emergency.

Your editorial admits of disadvantages and it has been our purpose to spell out some of the more important ones. We submit that these make the practice of alternate designs something less than a "welcome innovation."

JOHN E. RINNE,
President Structural Engineers Association of Northern California
Berkeley, Calif.

Correction

Detroit Dam (ENR Dec. 21, 1950, p. 42) is the highest dam undertaken by the Corps of Engineers and not Pine Flat Dam as reported in ENR Oct. 4, p. 38. In comparing the height of Corps of Engineers dams, the ENR staff editor who wrote the Pine Flat article got tangled up in the old argument regarding height of dams. For Detroit Dam, he used the hydraulic height of 371 ft (height from normal tail water to dam crest) instead of the total height of 463 ft between lowest point in foundation and top of dam. This latter is now commonly accepted in making height comparisons.

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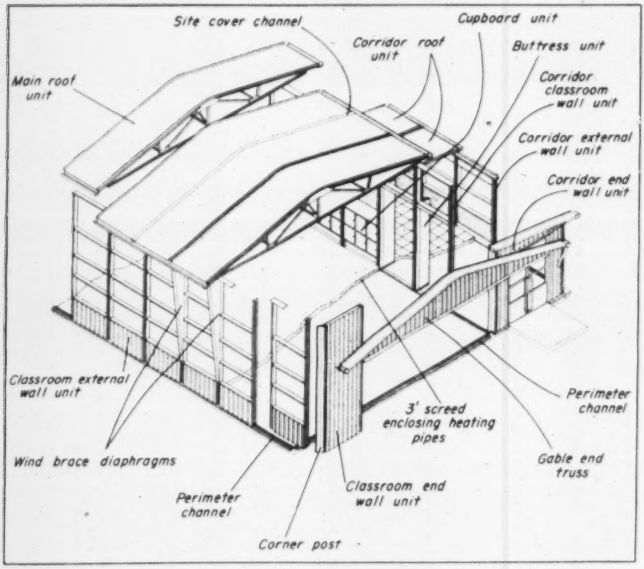


Prefab schools made of aluminum

Immediately after the last war, the British Ministry of Supply commissioned the Bristol Aeroplane Company Ltd., among several other leading British aircraft manufacturers, to build more than 11,000 aluminum prefabs to ease the acute housing shortage.

When the government contract for the sectional houses was completed, Bristol looked for new ways in which to utilize its workshops. Engineers conceived the idea of making all kinds of institutional buildings from standard components on a unit principle, and entirely from high-grade aluminum, which meant the saving of such scarce materials as timber and bricks.

Hundreds of schools were needed in England alone right away and local authorities were quick to see that a permanent aluminum school building can be completed at least 18 months earlier than a steel, timber and brick school can be built. By June, 1950, orders for Bristol's aluminum schools had been received from 70 educational authorities in all parts of England.

In addition, a seven-figure contract for aluminum schools, hospitals, post offices and telephone exchanges was received from Australia, which is among Bristol's best customers and where this type of aluminum construction had already found a ready market.

Since that time, more than $8,400,000 worth of orders have been placed with Bristol through its Australian agents, the Overseas Corporation (Australia) Ltd. These orders cover some 450 school buildings, 20 hospitals, offices for the Joint Coal Board of Australia, telephone exchanges, post offices and equipment buildings for the Australian Postmaster General, and training workshops.

• **Aluminum hospital**—Recently a 50-bed Bristol aluminum hospital costing $33,600, to be used for examination and treatment of tubercular children before admission to a sanatorium, was delivered to Greece. In addition to accommodations for beds, the hospital, measuring 108 ft. by 40 ft., comprises bathrooms, medical inspection rooms, matron's room, nurses' rest room, and partitioning for cubicles.

The entire building, complete with plumbing and electrical fittings, was crated at Weston-super-Mare, the 130 cases weighing about 50 tons. Bristol is very proud of the fact that the erection of this building, which covers an 8-acre site just outside Athens, was completed in two months by 12 Greek workmen. This was Bristol's first order for Greece. It has just been followed by a second from the Greek government for Bristol aluminum institutional buildings to cost $84,000.

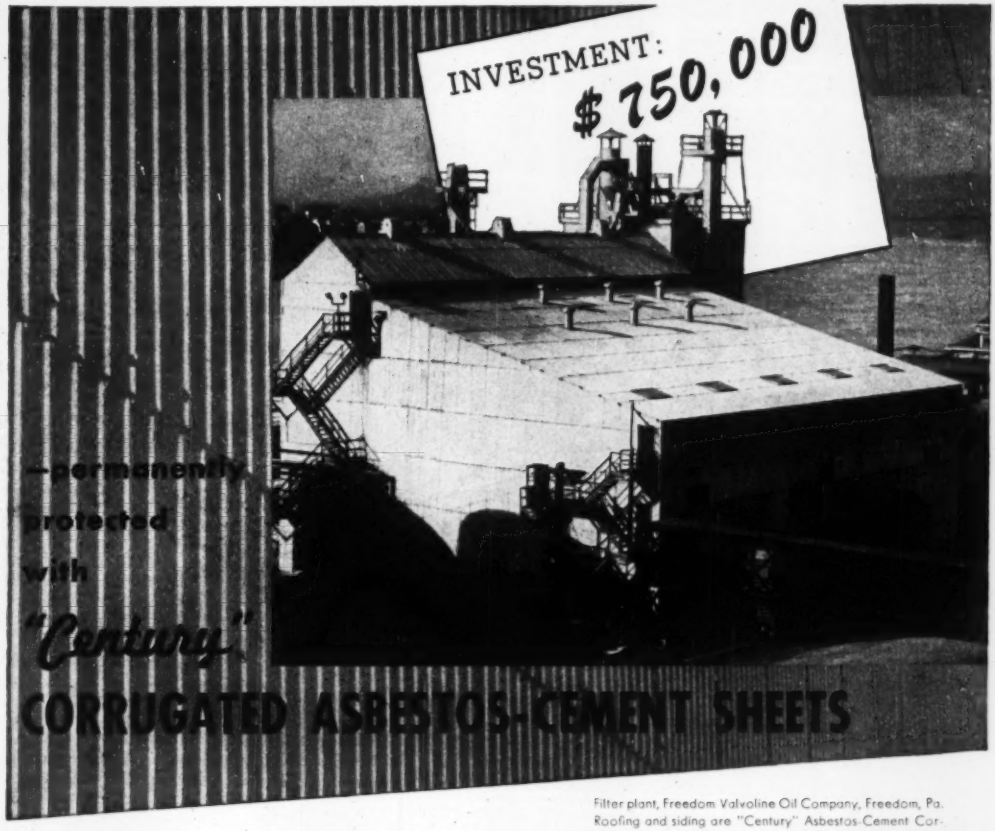
But all this is only a step in the company's ambitious plans to increase production, although the present aluminum shortage threatens to slow down the rate at which the 100 workers at the Weston-super-Mare plant are taking on new jobs.

The workshops are humming with small teams of men moving rapidly round simple, horizontal jigs, drilling and riveting wall-panels and partitions. They are making insulated and soundproof "sandwiches." These "sandwiches" are formed by pressing down onto an aluminum skin a thick layer of glass fiber, followed by a layer of building board. When a panel is finished, two men can lift it to the ground easily and start another.

One of the main advantages of aluminum as a building material is that even the big sections can be lifted and put into place easily by hand. The construction begins with a very thin rectangular foundation, a concrete

(*Continued on page 46*)

ENTRANCE—to Gray's Farm county primary school, Chislehurst, Kent.



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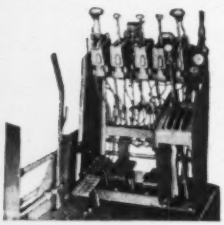

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DOMESTIC SCIENCE ROOM—at Pyrles Lane secondary school, Loughton, Essex.

slab only 4 in. deep, which is drilled at intervals round the edge to take the ragbolts fastening down a simple perimeter channel. The 4-ft wall-panels are stood on end and bolted to this bottom channel. A 4-ft wide roof section spans the to pand is bolted.

• **Standard width**—All units are a standard 4-ft width, although heights are varied. Roof sections incorporate structural frame, weather-proof external skin, internal ceiling, and acoustic and thermal insulation. Each section is formed of 20-gage aluminum sheet, to which a layer of millboard is secured and riveted in the factory to aluminum purlins, which in turn are riveted to two light trusses at 4-ft centers. To the underside of these is fixed the finished ceiling, consisting of insulating board overlaid with a glass fiber quilt to give the necessary thermal and acoustic insulation. Deep eaves prevent glare, and light is diffused to some extent by the triangular bracing diaphragms.

Wall sections are built so that the glass area can be varied vertically by insertion of a solid panel. A wall unit may, therefore, have no windows or be entirely glazed.

Side mullions of the wall panels are bolted together to form the structural frame of the building and the subframe for the windows. The panels are bolted at the base to the perimeter channel and at the top, by means of a special section, to the roof. Wind loading is taken up in the bracing between corridor and classrooms—which provides locker space—and by triangular bracing diaphragms attached to outside walls.

End walls, where the sections are not joined to traditional-type buildings, as is frequently the case, are formed from corrugated sheeting in framed panels filled with glass wool.

General economic survey of Ceylon to be made

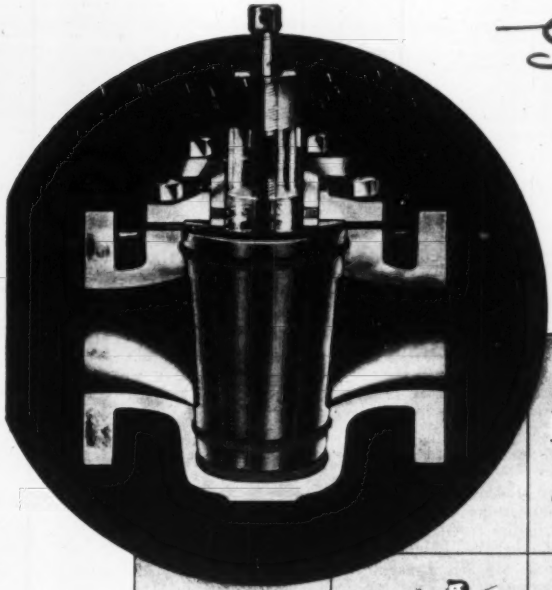
At the request of the government of Ceylon, the International Bank for Reconstruction and Development has organized a mission to make a general economic survey of that 25,332-sq. mi. island to the southeast of India. Ceylon is a British dominion with a population of about 7,000,000.

The mission is headed by Sir Sydney Caine, until recently United Kingdom alternate executive director of the bank, and head of the British Treasury and supply delegation to the United States. The 12-man team of experts to go on this mission includes nationals of the United States, the United Kingdom, India, France, Italy, the Netherlands, and the Union of South Africa.

After studying the economic potentialities of Ceylon, the mission will make concrete recommendations designed to assist the government in setting up a long-term development program. The studies will cover irrigation and water resources, power, public health, transportation, finance, agriculture, industry and mineral resources of the country.

• **ECA money for Formosa**—The Economic Cooperation Administration has allocated an additional $1,500,000 to Formosa, most of it to go for materials for the island's steel and iron mills. Included is also a health project.

IN NO OTHER VALVE



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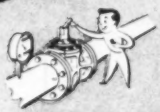
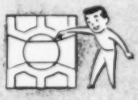
RESIST CORROSION, EROSION
Lubricant protects parts

RESILIENT SHOULDER SEAL
Allows jacking of plug

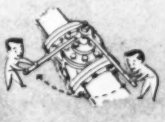


RELUBRICATE UNDER PRESSURE
No need to shut down line



UNEXPOSED VALVE SEAT
No contact with line fluid

ADJUSTABLE UNDER PRESSURE
Simple external adjustment



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Simple sliding action

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For restricted areas

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SAVE MAN-HOURS
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Extraordinary records for purification efficiency and for low costs of installation and operation are being established by Yeomans plants for treating industrial and domestic wastes.

Helpful bulletins, listed here, constitute a valuable library for quick reference.

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MUNICIPAL

STRENGTH, BEAUTY AND PROFIT—The recent 20th anniversary of the opening of the George Washington Bridge over the Hudson River at New York served to focus attention again on that remarkable structure—in the opinion of many the world's most beautiful bridge. Moreover, it has brought in more than $100,000,000 in tolls.

George Washington Bridge—20 yrs. old

Spanning a superb sweep of the Hudson and with its background of the age-old Palisades on the New Jersey side, the George Washington Bridge, now 20 years old, has a magnificient setting. In the original plans, the steel work of the two towers, more than 700 ft high, was to have been encased in concrete and topped with granite, but the naked structural work turned out to be so strikingly beautiful, and resulted in such a saving in masonry that the bridge has remained "unfinished" in that respect to this day. The Washington Monument in the national capital is a fitting tribute to the Father of his Country, but it can hardly be called utilitarian, whereas the George Washington Bridge is equally artistic, if not more so, and is likewise a business success. In its 20 years it has carried 200,811,678 vehicles across the river and has brought in a revenue of $109,886,465 in tolls. Also it has added thousands to the population of northern New Jersey, and millions of dollars to the value of real estate there.

The bridge was designed by the engineering department of the Port of New York Authority, O. H. Ammann being chief engineer; Allston Dana was engineer of design. Consulting architect was Cass Gilbert; and among the consulting engineers were George W. Goethals and Ole Singstad. Gustav Lindenthal gave special advice on design.

One water crisis after another

In many sections of the country municipalities seem to be constantly in the throes of a water shortage or fear that it is just around the corner. As witness the following news items:

• **Grand Rapids, Mich.**—This city, the second largest in the state, is having trouble supplying its 175,000 population with sufficient water. Back in the early forties, the city, with government aid, built a 35-mi, 46-in. pipeline to Lake Michigan. This has supplied all wants up to the present time. City Manager George E. Bean says an additional 20 mgd is required. He has commissioned Service Director Charles W. Darling to investigate the possibility of providing this additional supply. A group of water supply specialists is at present taking borings and sinking test holes to determine if an adequate supply is availalbe in water-bearing sand and gravel beds near the existing filtration plant. If sufficient water is not available, the city will have to construct a new filter plant to use water from Grand River or build a new pipeline to Lake Michigan. The latter is the more expensive.

• **Kokomo, Ind.**—Kokomo Water Works Co. is planning an expansion of its producing capacity to about 10,000,000 gpd. A new well field is planned to double the present supply.

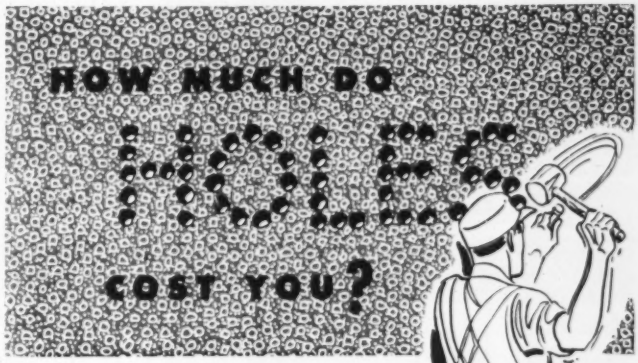
• **Philadelphia, Pa.**—A 60-mi tunnel through the Poconos to channel water

from Pennsylvania's flooded coal mines into the drinking water supply of Philadelphia has been proposed by Llewellyn M. Evans, a retired state mine inspector, who said his plan would save the state's flood-stricken anthracite industry while assuring its largest city of an almost inexhaustible source of water. It is said that coal companies in Lackawanna County alone are pumping 204,000,000 gpd from their mines. Samples of year-old mine water taken a few months ago were acid-free, according to Mr. Evans.

• **Orleans, Ind.**—The water supply of this town, long a problem for local officials, has dropped to a new low and the situation is critical. Wells which have supplied water are failing, and customers have been asked to discontinue sprinkling or using water for car washing. The order was issued to conserve enough water for fire protection. The town operates a reservoir lake but the supply of water from that source has failed to meet demands.

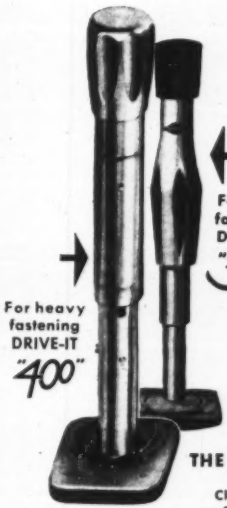
• **Raleigh, N. C.**—After a previously-adopted ordinance restricting water use failed to cut down consumption appreciably, the city council in the face of a critical water shortage has adopted an ordinance which requires all consumers to reduce water consumption by one-third of the average daily amount they used a year ago, or pay 500 percent of the cost of the excess water used. Other emergency ordinances prohibit the washing of cars, watering of lawns, or the use of air conditioning units which do not recirculate the water. Durham, 23 miles away, has offered Raleigh up to 2,000,000 gph if Raleigh could transport it. Durham has plenty of water and is not affected by the current drought which has hit many North Carolina communities, since it has constructed a huge impounding reservoir in 1926 which contains enough water to last the city for a year without any rainfall. Other North Carolina communities hit by the drought and which have adopted emergency water conservation ordinances include Henderson, Oxford, Mebane and Roxboro.

• **More powerful pumps**—The new $900,000 high lift water pumping station of Hamilton, Ont., will be put into operation soon with ultimate capacity to serve a city of 400,000. W. L. McFaul, city engineer and manager of waterworks, said the new brick building at the Beach plant houses three pumps rated at 25,000,000 gpd, each driven by a 1,750 hp. motor, and a 15,000,000 gpd pump driven by a 1,000 hp. motor. The pumps lift water from Lake Ontario to the Barton reservoir, to increase capacity from 40,000,000 to 60,000,000 gpd.



A hole has been defined as nothing surrounded by something! Now if you were asked to pay for "nothing" you'd rightfully refuse. Yet if you are still clinging to the old "dig and drill" method for fastening steel or wood to concrete—YOU ARE PAYING FOR "NOTHING"!

The modern DRIVE-IT method for fastening does away with drilling and boring. A small powder charge provides the "muscle" to "drive" the hardened steel drive-pin. No previous preparation is needed. One split-second and the fastening is made—strong, permanent and *inexpensively.*



The DRIVE-IT fastening method has been fully tested and approved by the Underwriters' Laboratories for efficiency and safety.

Yes, wherever steel or wood must be fastened to concrete or steel, DO IT with DRIVE-IT . . . and save time and money. Write for complete information.

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Approved By Underwriters' Laboratories

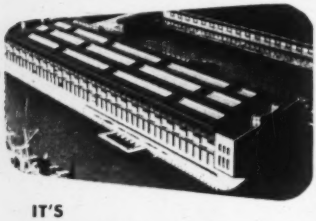
MOST MODERN PIER

At Philadelphia's magnificent new Pier 80, built by Hughes-Foulkrod Company for the Department of Wharves, Docks and Ferries, DAREX AEA concrete was used throughout. One big reason was increased durability—better resistance to sea water action.

USES

MOST DURABLE CONCRETE

DAREX AEA concrete is doubly durable. It is more impermeable — it resists freezing and thawing. During construction, DAREX AEA places easier with less water, bleeds less, finishes quicker, does a better job on all concrete construction work.



IT'S

DAREX AEA

CONCRETE!

Darex AEA is the only catalyzed air entraining agent on the market today. It is not a by-product — it is specifically formulated for making air-entrained concrete.

Darex AEA is in use everywhere on every type of concrete construction . . . and in ready mix and concrete products plants using every known type of aggregate.

Darex AEA is conveniently available in distributor warehouse stocks throughout North and South America and in countries abroad.

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MEN AND JOBS

New appointments

Highway departments

Charles Darlington has been appointed District 3 engineer, West Virginia highways.

State, city and county

James Snediker, retired Marine Corps brigadier general, has been named Fresno, Calif., public works commissioner.

Donald H. Stansfield, formerly associate planner, has been promoted to senior city planner in Dayton, Ohio, succeeding **Robert Flynn,** named planning director.

Leo Lupin, civil engineer, has been appointed city manager of Cap de la Madeleine, Que.

The appointment of **Clair E. Smith** assistant to J. Burch McMorran, chief engineer in the N. Y. State Department of Public Works, is announced. He will act as a liaison between agricultural and conservation groups and the department in the review of highway construction plans as they relate to farm drainage, forest preserves, cattle passes, rights-of-way and similar problems.

Corps of Engineers

Capt. Charles H. Anderson is assistant to the executive officer at Louisville, Ky., succeeding **Capt. William M. Wilson** who is going to Germany.

Arden F. Kull has become chief of the operations branch of the Sacramento District. He has been project engineer for the Folsom Dam work, succeeded by **Fred Geiss,** transferred to the Folsom project from the Buggs Island Dam project on the Roanoke River in Virginia. The work Kull will assume has been handled by **J. R. Morton.** However, Morton's major duties are as chief technical assistant to the district engineer and Kull's appointment will enable him to devote his efforts exclusively to that job.

Industrial and commercial

H. H. Roberts, formerly chief engineer at Bull Shoals and Detroit dams, has joined the Arundel Corp., Baltimore, and is project manager on Liberty Dam, being constructed for the Baltimore water department on the Patapsco River, 20 miles northwest of the city.

Paul F. Kohlhaas has been appointed assistant vice-president, design and appropriation control, **U.S. Steel Co.** He went to U.S. Steel in 1941 as chief engineer for the Columbia Steel Co. He was made vice-president in charge of engineering four years later, the position he held at the time of his new appointment.

Col. Harry E. Fisher has been made vice-president of the Airways Engineering Corp., Washington, D. C., to assist in servicing and supervising the architect-engineer technical and executive work in airport planning and facilities design and management. He is a graduate of West Point and has degrees of civil engineer from Rensselaer Polytechnic Institute and in architectural engineering from Penn State.

Col. Fisher has been in the Army Corps of Engineers for more than 27 years.

Retirements

Clay H. Southworth, pioneer in Western reclamation, has retired at Phoenix, Ariz., after 30 years with the Indian Service. He was resident engineer in charge of construction of Coolidge Dam in central Arizona and later was engineer for the San Carlos irrigation and power project. Since 1946 he was head of the Southwest area irrigation division. His latest large project was development of the Colorado River reservation near Parker, Ariz., and planning the 100,000-acre Shiprock project in New Mexico. His successor is **Robert H. Rypkey,** assistant since 1946.

Maurice D. Glessner has retired as construction engineer with the Corps of Engineers. He began with the U. S. Geological Survey in 1907 at Sacramento, Calif. After 45 years in Alaska, Canada, Mexico, Central and South America and the U. S., he returned to Sacramento and ended his service with the Corps of Engineers practically on the same spot where he started back in 1907.

Burton J. Anderson, hydrographic engineer with the U. S. Navy Hydrographic Office, has retired after 41 years with the government. He spent 15 of his 37 years with the Navy on the USS Hannibal, hydrographic survey vessel, mapping the Caribbean area, the Aleutians and Labrador. From 1946 to 1948 he was in charge of all technical matters in charting the Japanese islands.

It takes a lot of scrap to make steel— How about yours?

The problem was...

How to get extra copies of blueprints—

fast!

A case history based on the experience of the American Brake Shoe Company, Kellogg Division, Rochester, N. Y.

The blueprints (and direct-process prints) submitted by customers placing machining orders used to be a problem for the Kellogg Division, American Brake Shoe Company.

Invariably, prompt delivery was requested. But... before production could begin, extra copies of each customer-print were needed. Being semi-opaque, these prints could not be used as print-making masters in Kellogg's direct-process machine. How, then, could the extra copies be obtained in the shortest time... and at the lowest cost?

Kodagraph Autopositive Paper was the answer.

Now... extra copies are made quickly... economically

With Kodagraph Autopositive Paper, Kellogg reproduces the blueprints, direct-process prints, and other types of "originals" *directly*... quickly obtains the print-making masters that are needed so urgently.

The operation is simple... is performed under ordinary room light. Autopositive Paper is exposed in contact with the customer's print in Kellogg's direct-process machine. It is then processed in standard photographic solutions. The result is a sparkling, long-lasting, highly legible photographic reproduction—dense blacks, clean whites—on a durable, evenly translucent paper base. From this Autopositive intermediate, the required number of extra copies can be turned out... at practical, uniform machine speeds.

Kodagraph Autopositive Paper

"THE BIG NEW PLUS" in engineering drawing reproduction

- **It enables you, or your blueprinter, to produce photographic intermediates directly, at a new low cost, without an extra step.**
- **It enables you to protect valuable originals from wear and tear.**
- **It gives you photo-lasting file copies.**
- **It restores old, worn drawings ... reproduces opaques.**

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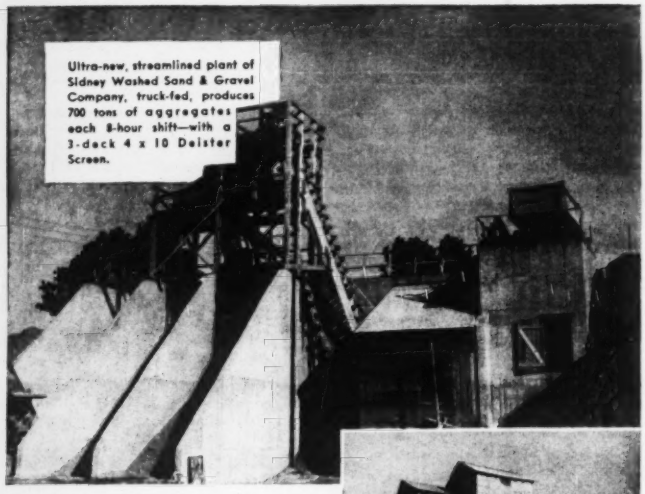
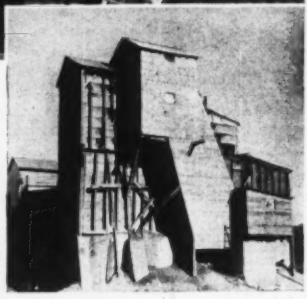
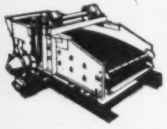


Ultra-new, streamlined plant of Sidney Washed Sand & Gravel Company, truck-fed, produces 700 tons of aggregates each 8-hour shift—with a 3-deck 4 x 10 Deister Screen.



Long, trouble-free service by three Deister Screens in its old plant (still in use) led Sidney Company to buy Deister Screen for its new plant.



BOUGHT FOR THE NEW

Sidney Washed Sand and Gravel Company, Sidney, Ohio, equipped its new plant with a new three-deck 4 x 10 Deister Screen, to get 700 tons per 8-hour shift.

BECAUSE PROVED IN THE OLD

Sidney's old plant, still going strong, has THREE Deister Screens—a 30" x 48" single-deck scalper, two 3 x 6 three-deck, and a 3 x 10 single-deck. Capacity is 500 tons per day.

Plant superintendent, Leonard Hershey, who has operated gravel plants for 25 years, said: "Deister Screens do a better job and cause less trouble than any screen I know."

Deister will do the same for you. Get the facts from your Deister dealer—or direct from the factory.

DEISTER SCREENS

DEISTER MACHINE COMPANY

FORT WAYNE 4, INDIANA

MEETINGS

Forty four states were represented at the 30th annual meeting of the National Council of State Boards of Engineering Examiners, held in Boston Oct. 21-24. During the past year 13 states amended their registration acts to clarify and strengthen their requirements, according to T. Keith Legare, executive secretary of the council. Mr. Legare also reported that the number of registered professional engineers in this country now totals 165,000.

New officers elected were: president, C. S. Crouse, head of the Department of Mining and Metallurgy at the University of Kentucky, Lexington, Ky.; vice-president, A. G. Stanford, consulting engineer of Atlanta, Ga.; directors, Bruce Williams, The Bruce Williams Laboratories, Joplin, Mo.; James H. Sams, dean of engineering at Clemson College, S. C.; and Junius T. Morre, president, Fireproof Products Co., Charleston, W. Va.

The next annual meeting of the national council will be held at Colorado Springs, Colo., 4-6, 1952, and the 1953 annual meeting will be held at San Antonio, Texas.

CALENDAR

American Concrete Pipe Association, short course school, Edgewater Beach Hotel, Chicago, Nov. 26-28.

Conference on Atomic Installation in Buildings, Building Research Advisory Board. (Laboratory design for handling radioactive materials) National Academy of Science auditorium, Washington, D. C. Nov. 27-28.

Southeastern Association of State Highway Officials, Francis Marion Hotel, Charleston, S. C., Dec. 5-7.

Southeastern Association of State Highway Officials, annual meeting, Charleston, S. C., Dec. 6-7.

Bituminous Concrete Producers Association, annual convention. The Roosevelt Hotel, New York City, Dec. 6.

N. Y. Section, American Water Works Association, winter luncheon meeting, Hotel Park Sheraton, N. Y. City, Jan. 15.

Highway Research Board, annual meeting, National Academy of Science Bldg., Washington, D. C., Jan. 15-18.

Canadian Construction Association, annual meeting, Royal York Hotel, Toronto, Ont., Jan. 20-23.

National Association of Home Builders, annual convention and exposition, Conrad Hilton and Congress Hotel, Chicago, Jan. 20-24.

American Road Builders Association, Golden Anniversary, Rice Hotel, Houston, Tex., Jan. 21-24.

OBITUARY

Homer X. White, 61, bridge engineer of the Oklahoma State Highway Department, died Oct. 18. He was a 1913 graduate of Iowa State College and for a number of years was employed by the American Bridge Co., Ambridge, Pa.

Lewis D. Rights, 80, retired bridge and rail lines engineer, died at Roselle Park, N. J., Oct. 30. A graduate of Lehigh University, he was a civil engineer for railroads in the West and Middle West. He joined the Shoemaker Bridge Co. in Pottstown, Pa., in 1906, and retired as a vice-president in 1934.

John H. Johnston, 75, Madison, Conn., a retired civil engineer, died in New Haven Oct. 26. A graduate of Yale's Sheffield Scientific School, he worked as a civil engineer for several companies in New York, specializing in bridge construction, including work for the Erie R.R. He retired in 1923.

Simon Belli, 64, president of the Belli Construction Co., died in Trenton, N. J., Oct. 21. In 1920 he was named vice-president of the Karno-Smith Co. a Trenton construction firm. In 1945 he took control of that company and changed its name to the Belli Construction Co. He was the building contractor in charge of constructing the Trenton Post Office, the Trenton Central High School, the War Memorial Auditorium, the New Jersey State House Annex, the New Jersey State Employment Security Office building, the State Highway Department office building, and the Sloane-Blabon and Thermoid Co. factories.

John R. Rockart, 79, engineer-architect, who was associated with the construction of the United States Supreme Court and United States Chamber of Commerce buildings in Washington, D. C., died Oct. 13 in Bronxville, N. Y. He worked for Harold P. Zoller & Co.

Harry Slemons Hastings, 74, retired building contractor and former building inspector in Salisbury, Md., died Oct. 22. He was a senior partner of the contracting and building firm of Hastings and Parsons, established in 1910.

F. C. Jewett formerly chief engineer of construction for all airports across Canada, and more recently consulting engineer with A. W. Robinson Co., Montreal, died at Ottawa, Ont., recently.

Col. Lewis C. Gordon, 64, at one time a surveyor in the civil engineering section, Department of the President, Board of Public Service, Division of Streets & Sewers, St. Louis, Mo., died in Houghton, Mich., Oct. 23. He entered the Army in 1917 and served in the Corps of Engineers until his retirement a few years ago. Prior to his Army service he was employed by the City of St. Louis for about ten years. He had lived in Houghton since retirement and was a professor of military science at the Michigan College of Mining and Technology.

Eldon A. Noble, 61, office engineer for the Lancaster, Neb., county engineer's office for 30 years, died Oct. 25.

Raynor W. Low, 73, who had been a building contractor in Florida and California as well as in his home province of Nova Scotia, died Oct. 15 at Halifax. He played a leading role in the rebuilding of Halifax following the 1917 explosion of a war munitions steamer in the harbor, when much of the city was demolished.

Joseph B. Himmelheber, 48, engineer-architect, who was formerly associated with the Cafritz Construction Co. in Washington, D. C., died in Bethesda, Md. Oct. 22. During World War II, he was with the State Department, working on designs of U.S. embassies abroad.

Robb Gover, 57, a construction engineer with the West Virginia State Road Commission for more than 20 years, died Oct. 18 at Charleston. He was construction engineer of secondary roads. He was a graduate of the Baltimore Polytechnical Institute.

Is the steel you need loafing on your scrap pile?

60th birthday observed by Drexel Institute

On Oct. 30th to Nov. 1 Drexel Institute of Technology, Philadelphia, held a convocation for its 60th anniversary. Principal speakers were General of the Army George C. Marshall and M. Georges Bidault, vice-premier and Minister of National Defense of the Republic of France.

There were a large number of well-attended panel discussions led by experts in various phases of engineering, industry and business. The subjects included research, machinery and equipment, metals, transportation, and city planning.

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Field Offices • Storage Sheds • Pump Houses • Machine Shops • etc.

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★ Longer Service

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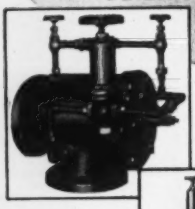
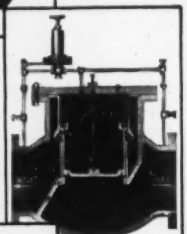
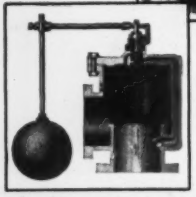
Install GOLDEN-ANDERSON "Cushioned" VALVES



G-A Surge Relief Valve. Bulletin W-2 sent on request.



G-A Water Pressure Reducing Valve. Bulletin W-3 contains the technical information you want.



G-A Cold Water Float Valve. Bulletin W-5 will be of interest to you.

The patented air and water double cushioning feature inherent in all G-A Valves prevents any slam or hammer.

Let our reputable engineers help you with your water control problems.

GOLDEN ANDERSON Valve Specialty Company

2094 KEENAN BUILDING PITTSBURGH 22, PA.

LABOR

File new charges against Delaware building unions

Labor troubles stemming from union attempts to organize construction workers on the new Wilmington, Del. Merchandise Mart brought still another legal charge against the AFL unions last week.

Attempts to organize workers of a ready-mixed concrete firm (ENR Oct. 25, p. 66) had already produced two charges of unfair tactics by contractors. The third charge was also filed last week, with the Philadelphia office of the National Labor Relations Board.

The newest charge was filed with NLRB by Corrado Brothers, a Wilmington firm engaged in excavation, paving, grading and storm sewer construction for the $20 million structure. The Corrado firm—employing union labor—said its workers have been threatened with heavy union fines and suspension of union membership for continuing work on the project.

The company told NLRB that while its workers were being hampered by such threats, it had been warned by general contractors that its contract will be voided if not completed.

Previous charges were filed by the Petrillo Brothers Co., ready-mix concrete suppliers, charged that AFL building trades unions were trying to force other firms to stop using Petrillo products; and by the E. I. DuPont de Nemours Co., which said that union workers at its Stine Laboratory job near Newark, Del., had held up work by refusing to handle Petrillo-supplied concrete.

Building union leader heads Calif. labor body

Lloyd Mashburn, Los Angeles AFL building trades union leader, has been appointed California state labor "Commmissioner," a state announcement said last week.

Mashburn succeeds the late John F. Dalton in a job that carries the exact title of Chief, Division of Law Enforcement, Department of Industrial Relations. Dalton was also well-known as a labor leader.

Mashburn is secretary-treasurer of the Los Angeles Building and Construction Trades Council, secretary of the Southern California District Council of Lathers, secretary of the nine southern California building and construction trades councils, and president of the Los Angeles Labor Temple Association.

Find skilled labor 1,000 short in Akron

Contractors and labor leaders are agreed that many more skilled building tradesmen are needed at Akron, Ohio, to keep some $15 million worth of construction work going full swing.

The situation—which found contractors estimating the need at 1,000 men—is typical of many U. S. centers. The figures were turned up in a survey conducted by the Akron Beacon-Journal.

Contractors listed their needs like this: About 100 carpenters; 500 bricklayers and cement finishers; 70 electricians; 365 journeymen plumbers. They thought they had plenty of painters, plasterers, common laborers. Union business agents disagreed on numbers (they thought 35 electricians would be enough, for example) but agreed on general opportunities for labor.

Both sides were inclined to blame higher wages in nearby areas (carpenters can get 22½ cents an hour more at Cleveland) for the shortage.

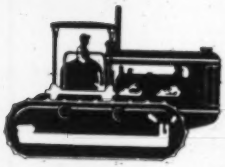
Labor briefs . . .

• **School days**—Seventeen officers of trade unions and labor organizations are enrolled in the 10th annual 13-week trade union program at Harvard University Business School. Special courses in labor relations, labor law, arbitration and international labor problems are given.

• **Bricklayer strike over**—A 10-day strike of bricklayers on the new Bethlehem Steel Co. plant at Lackawanna, N. Y., ended, when workers agreed to return to the job pending arbitration.

• **Louisiana carpenters up**—AFL carpenters in the St. Charles, La., area, have reached agreement with employers calling for a 50-cent-an-hour wage increase for residential work, pending WSB approval. The rise would bring hourly wages to $2.50.

• **Threaten strike**—A 30-day strike notice over a wage dispute that involves 11,000 carpenters in Wayne, Oakland and St. Clair (Michigan) counties, has been filed with NLRB. Carpenters and contractors have been negotiating new wages since Jan. 24, with the union demanding a 15-cent hourly increase. And disagreement still exists as to how the increase should be passed on—if it can be—to the buyer, union officials said.



CARROLL TRACK ROLLERS

Stay ON THE JOB

The Newest Engineering Development in Track Rollers

. . . PIONEERED BY CARROLL

Again Carroll scores a bull's eye!

The new Carroll Track Rollers with "GUARD-Z-OIL" DIRT-EXCLUSION SEALING, like former Carroll Rollers, have ONE-PIECE manganese Alloy Steel Shells. The roller assemblies with Center-Thrust Type Shafts, are mounted by means of Mounting Blocks (NOT END COLLARS) . . . to permit efficient operation of the "Flow-Away" Dirt-Exclusion feature! Tested, proved, revolutionary! . . . Ready to go to work for you to reduce shutdown time and maintenance costs!

NOW . . . Three Distinct Carroll Rollers are Available:

- ***Pressure Lubricated Rollers***
  The Rollers that Pioneered the principle of "Guard-Z-Oil" DIRT-EXCLUSION SEALING, SELF-LUBRICATED by OIL UNDER PRESSURE supplied by a simple cam activated pump in EACH roller—no connecting lines. Fully Patented.
- ***"DE" Series Interchangeable Rollers***
  With the perfection of this new Carroll Roller, long life performance under the most severe operating conditions is assured. When used, the "Flow-Away" principle of "GUARD-Z-OIL" DIRT-EXCLUSION SEALING permits a small amount of grease to pass outward past the seals, thereby EXCLUDING all dirt and abrasives. Old type, conventional Bellows seals, wear plates and end collars can be utilized where preferred.
- ***Conventional End-Thrust Rollers***
  Its one-piece Shell makes it a good buy!

All With
ONE-PIECE SHELLS OF MANGANESE ALLOY STEEL
Pressure and "DE" Series Have
GUARD-Z-OIL®
SEALING AND EXTRA LUBRICANT CAPACITY

"DE" SERIES PARTS INTERCHANGEABLE WITH "CATERPILLAR"

The Carroll "DE" Series D-8 and D-7 Shells, Shafts and Bearings are interchangeable for use in "Caterpillar" Rollers.

All End-Thrust parts fully interchangeable.

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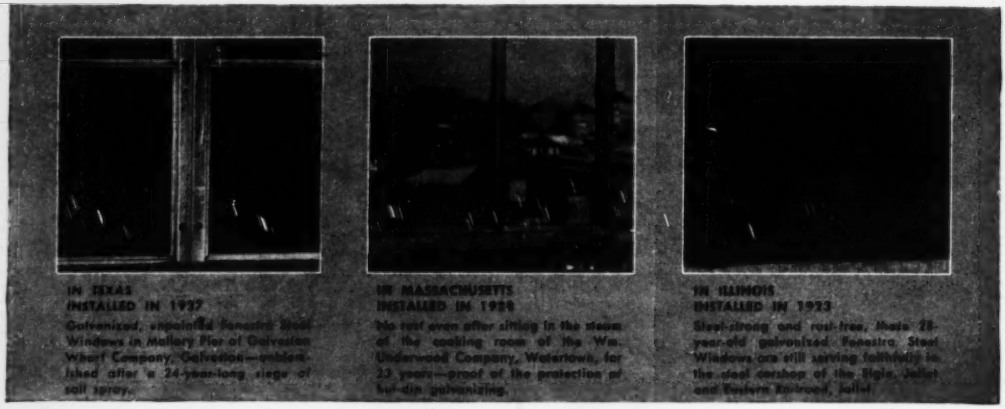
CRAIG CARROLL COMPANY

Equipment Engineers

These Strong Steel Windows Have Never Rusted!

(Un-retouched photographs taken in 1950)



IN TEXAS
INSTALLED IN 1937
Galvanized, expanded Fenestra Steel Windows in Mallory Pier of Galveston Wharf Company, Galveston—exhibited after a 24-year-long siege of salt spray.

IN MASSACHUSETTS
INSTALLED IN 1928
No rust even after sitting in the steam of the casting room of the Wm. Underwood Company, Watertown, for 23 years—proof of the protection of hot-dip galvanizing.

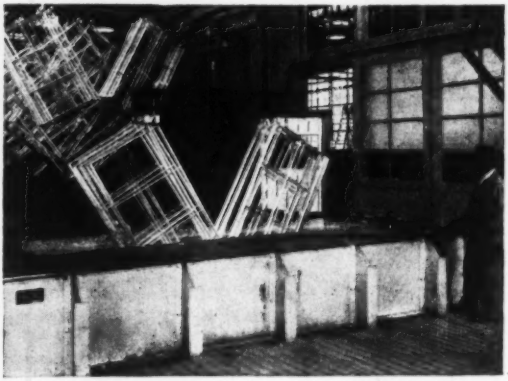
IN ILLINOIS
INSTALLED IN 1923
Steel-strong and rust-free, these 28-year-old galvanized Fenestra Steel Windows are still serving faithfully in the steel carshop of the Elgin, Joliet and Eastern Railroad, Joliet.

And Now Fenestra Makes Them *Even More Durable!*

Now Fenestra* engineers have developed a new hot-dip galvanizing system that does an *even better* job—and they've built a brand-new plant around it, the *only* plant of its kind in America. Everything is ingeniously designed to give you *steel-strong* windows that really *eliminate* painting and save you maintenance money year in and year out.

First, the assembled frames are hung from the conveyor separate from the assembled ventilators. Then automatic controls move these assemblies from tank to tank—dipping them, lifting them, controlling each temperature, timing every move.

From degreasing to pickling to hot and cold rinsing to fluxing and drying they go. Then when finally they are perfect for galvanizing, they dip deep into molten zinc. Then they are Bonderized, which prepares the finish to take decorative painting if it's ever desired. Then they are rinsed again. And with every segment of surface, corner, joint and edge covered by locked-on galvanizing, the frames and their vents go to final assembly . . . and to you.



RISING UP out of molten zinc in the great Fenestra galvanizing kettle, these windows will never need painting!

So see them today. Call the Fenestra Representative (he's listed under "Fenestra Building Products Company" in your Yellow Phone Book) or write Detroit Steel Products Co., Dept. ER-11, 2277 East Grand Blvd., Detroit 11, Michigan. *®

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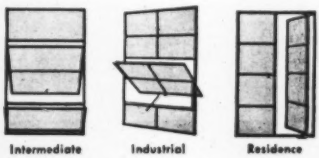


Intermediate Industrial Residence

CONSTRUCTION BUSINESS

Metals top 6 year industrial expansion

The primary metals industry, reflecting vast new plant for the steel, aluminum and copper industries, topped all other industries in construction of new facilities in the six year period from July, 1945 to June, 1951.

This has been disclosed by Territorial Information Department (sponsored by the Commonwealth Edison Co. and Public Service Co. of Northern Illinois). The two utilities based their findings on an analysis of major construction contracts reported in ENR.

• **Billion dollars plus**–The primary metals industry construction expenditures totaled $1,250.9 million during the six year period. This was 26.2% of the $4,771.4 million total reported in the study for all types of industrial construction.

Pennsylvania contributed the lion's share of this $1,250.9 million, reporting $439.3 million. Texas was second high with $191.1 million in this category, and Ohio, third, with $114.3 million.

• **Chemicals second** – The analysis showed the chemicals industry second in construction expenditures during this period, with $771.4 million reported. Texas led all other states in this type of construction with a dollar volume of $197.6 million. Illinois was second with $50.7 million, followed by Ohio, $45.1 million and Michigan, $39.8 million.

The petroleum and coal industries spent $557.5 million for construction between July, 1945 and June, 1951–and again, Texas was a prime factor, accounting for $234.8 million of the total. Much of this is traced to the laying of major oil and gas pipelines.

• **Another big one**–Transportation equipment industry, headed by the huge automotive industry, was the third biggest industrial spender for construction. Of the $454.1 million total reported in this category, the state of Michigan accounted for $148.3 million. Illinois ranked second with $52.8 million, and Ohio, third, with $48.7 million.

The paper industry ranked next in construction expenditures, with a total of $346.4 million reported. Alabama led in this industrial classification–with $82.2 million listed. Texas was second with $36 million and California third, with $27.2 million.

Other leaders in construction expenditures were the food industry, $339.6 million; textile industry, $176.5 million; machinery (except electrical), $159.6 million; stone, clay and glass, $154.3 million; electrical machinery, $149.8 million; fabricated metals, $122.2 million; and printing and publishing, $84.5 million.

• **The top 10**–The 10 states leading in volume of plant expenditures for the six-year period had 2,217 construction contracts amounting to more than $3.25 billion, average of more than $1.4 million per contract. The other states averaged slightly less than $1 million.

The 2,217 contracts in the 10 leading states represent 59% of the contracts reported and 68% of the total expenditures.

• **The Lone Star shines**–Texas led the states in number of contracts with 437 and also ranked first in expenditures for construction which amounted to $735 million. This state accounted for 42% of the nation's expansion in the petroleum industry, while Pennsylvania, second to Texas in expenditures, had more than one-third of the national expenditure in the primary metals industry. Illinois ranked second in number of contracts and fifth in expenditures.

Pennsylvania had 304 major contracts, with an aggregate dollar value of $573.6 million. Ohio was next with $364.8 million, followed by California, $336.5 million and Illinois, $330.8 million.

Next in line was Michigan, with $266.3 million; Alabama, $186.2 million; Indiana, $164.7 million; Louisiana, $159.4 million; and New York, $140.3 million.

Concrete pavement awards drop during October

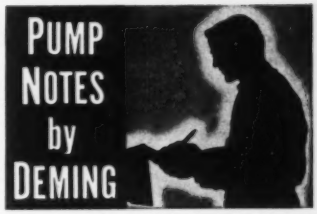
Portland cement concrete pavement awards for October dropped 21% below the same month in 1950, the Portland Cement Association reported.

However, the 10-month cumulative total is 6% above the comparable period last year.

Awards for roads are down 51% from October, 1950, and streets and alleys are 8% below the same month last year. Concrete pavement awards for airports show a spectacular 450% increase over October, 1950.

	Square yards awarded October, 1951	Ten months, 1951
Roads	803,175	20,910,294
Streets and alleys	1,777,446	20,936,999
Airports	275,451	12,979,019
Total	2,856,072	54,826,312

(Continued on page 60)



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These efficient, multi-stage, vertical turbine pumps are designed for wells from 4" to 16" or larger in diameter, and of practically any depth. Capacities from 15 to over 3000 G.P.M.

The standard *Unit Drive Head* is designed for installations where electric power is available. Eight sizes of pump heads with motors from 1 to 250 H.P.

The *Flexible Coupling Drive Head* is designed for use with vertical steam turbine or vertical solid shaft motor.

The *Combination Motor-Belt Drive Head* is designed to provide an economical means for operating the pump with belt drive from tractor or engine in case of electric power stoppage.

The *Combination Motor-Right Angle Drive* is designed for direct connection through flexible shaft to auxiliary source of power. Motor may be removed and pump operated through drive only.

* * *

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Barber-

840 BITUMINOUS PAVING PLANT

FOR NEW CONSTRUCTION...
RESURFACING...
MAINTENANCE...

B-G 840 Paving Plant, showing use of bulkhead feed with two-gate feeder for proportioning sand and gravel. 2, 3 or 4 aggregates may be blended in this manner.

PRACTICAL . . . PROFITABLE

UP TO 40 T. P. H.

The capacity range of this B-G Paving Plant has proved to be the most practical for a broad range of users. Output is high enough to supply materials for average-sized new construction and resurfacing jobs—investment is low enough to assure profitable operation at minimum capacities, or for intermittent operation.

ALL TYPES OF MIXES

Bituminous mixes of all types are produced at lowest cost with this B-G Plant. This includes the full range—all temperatures, all gradations and all binders. For "high-type" mixes, the aggregates are blended at the feeding end. Quality and uniformity are consistently high.

TRULY PORTABLE

Each basic unit of this plant—Mixer and Dryer-Dust Collector—is mounted complete on its own trailer-type pneumatic-tired chassis. Built-in hot and cold elevators and dryer stack fold down for transport. There is a minimum of dismantling—the plant can be moved and readied for work in new locations in a few hours' time.

EASIEST TO ERECT

No special erection equipment is needed to set up a B-G Paving Plant. No excavation or footings required. Units are spotted in place by truck, adjustable jacklegs are lowered to ground level, and the plant is ready for operation once the required auxiliary equipment is in place.

LOW-COST MAINTENANCE

The B-G Model 840 Paving Plant is easy to maintain. All moving parts are quickly accessible for inspection and adjustment. B-G Distributors offer fast emergency parts service, and are staffed with factory-trained experts to help you keep your B-G Paving Plant at top operating efficiency.

AUTOMATIC PROPORTIONING

Simple to understand and to operate, the B-G Paving Plant eliminates the human element in producing a consistently uniform mix. Once the bitumen and aggregate proportions have been set, they cannot vary as the positive displacement pump and aggregate apron feeder are positively interlocked. Proportioning is continuous, automatic and accurate.

see your B-G distributor

Greene

PROVED... ALL OVER THE WORLD

All over the world there are primary and secondary roads, boulevards, streets, airports, parking areas, recreational and training areas, rail heads and docks paved with all classes of material mixed in this B-G Paving Plant.

Its economy has been proved by hundreds of cost-conscious contractors, cities, counties and states.

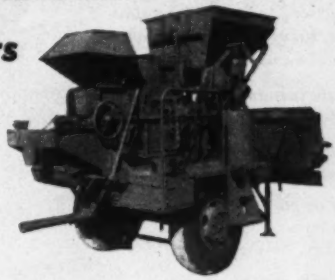
Its portability, ease of erection and uniform high quality production are factors favored by all operators—including the United States Armed Forces.

There is a need for bituminous surfacing materials in your area, and the B-G Paving Plant might well be the answer. See your B-G Distributor or write to the address below.

TWO BASIC VERSATILE PORTABLE UNITS

THE 840 MIXER

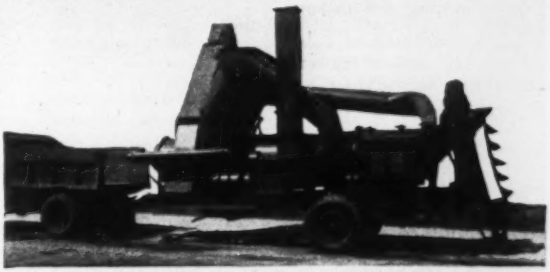
Compact, portable (note truck-towing hitch), this mixer incorporates an aggregate hopper with apron feeder and calibrated gate for accurate, measured control of flow of aggregates to pugmill. Pugmill is twinshaft type. Bitumen is supplied from insulated tank by positive displacement asphalt metering pump. Pump and apron feeder are positively interlocked for unvarying proportioning. Tank is heated by a torch-type distillate burner, eliminating need for boiler. Inclined belt conveyor elevates mixed material to trucks. All components, including power unit, mounted on pneumatic-tired chassis, equipped with jacklegs for quick erection.



Capacity of 840 Mixer: up to 40 tons per hour when used with Model 839 Dryer; up to 40 tons per hour when used alone to produce cold-mix materials.

THE 839 DRYER

Equally compact and portable design is evident in this unit which incorporates drying drum, hot and cold aggregate elevators, low pressure air atomizing burner, fuel pump, blower, exhaust fan and stack as well as power unit. Twin cyclone dust collector also may be mounted on same chassis. None of these components need be removed or dismantled for travel.



Capacity of 839 Dryer: up to 40 tons per hour. A similar Dryer with smaller capacity (10 to 25 tons per hour) is available. Either may be used with the 840 Mixer.

B-G BITUMINOUS PLANTS AND ACCESSORIES

The Barber-Greene line of bituminous mixing plants includes complete equipment for mixing up to 150 tons per hour of all classes of mixes. Units and accessories may be purchased individually for operation with other than B-G equipment.

In the complete B-G line, you will find the combination of Hoppers, Apron Feeders, Portable Conveyors, Elevators, transfer pumps, storage tanks, piping and other accessory equipment required for your particular plant setup. Ask your factory-trained B-G representative for full authoritative information. 2194

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Business briefs . . .

• **Machinery outlook**—The National Production Authority has told manufacturers of motor graders and power rollers that they will get enough controlled materials in the first quarter of 1952 to maintain production at about the present level.

• **Price boost**—Reflecting the increase of two cents per lb in the price of zinc (approved by the Office of Price Stabilization), the United States Steel Co. and its subsidiaries announced increases in prices of galvanized sheets, galvanized pipe and various galvanized wire and wire products.

• **Break bottleneck**—President Truman signed a bill that will break a money bottleneck for more than 30 veterans' co-operative housing projects. Under the new law, Federal National Mortgage Assn. will make advance commitments to purchase $30 million worth of mortgages for the projects that were approved for FHA mortgage insurance before last June 29.

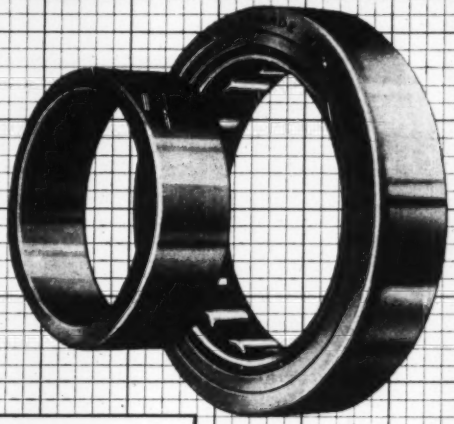
• **Boost production**—The Bureau of the Census added up the August production reports for unglazed brick, unglazed structural tile and clay sewer pipe and found that all three were higher than in July. August total for unglazed brick was 6% above July production but 7% under August, 1950. Clay pipe production was up 6% over July.

• **Expedite housing**—The National Assn. of Home Builders set up a 50 member defense housing committee to expedite the construction of 100,000 defense housing units to be built next year in "critical areas".

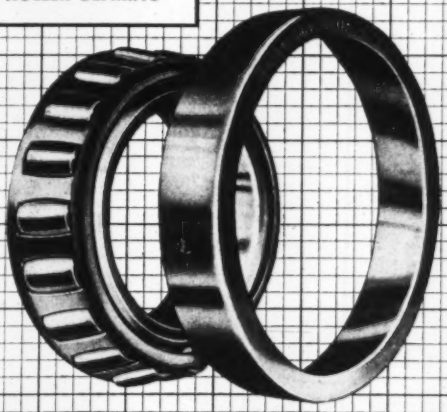
• **Boeckh index rises**—E. H. Boeckh & Associates reported that their construction cost index for commercial and factory type buildings advanced from 235.9 in August to 236.8 in September. For brick and concrete commercial and factory buildings, the index showed a rise from 235.5 in August to 236.1 in September.

• **Safety awards**—The Bureau of Mines of the U. S. Department of the Interior made 58 awards in its first safety competition for sand and gravel plants. The plants were classified into two competing groups—a bank or pit group and a dredge group. Overall injury experience for the competition was a frequency rate of 24.478 injuries per million man-hours and a severity rate of 2.017 days lost per thousand man-hours of work. Top honors went to the Memphis plant of the Marquette Cement Mfg. Co. and to the Quigley plant of the Fort Worth Sand and Gravel Co., Inc.

Millions of HYATTS are used each month ...because they do a better job



HYATT
STRAIGHT CYLINDRICAL
ROLLER BEARING



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ROLLER BEARING

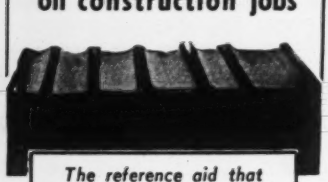
Manufacturers of power shovels, rollers, scrapers, graders, tractors, trucks, and other equipment have long realized the added design and performance benefits of building Hyatt Roller Bearings into their machines.

Distributors, too, know the selling advantages of being able to say it's "Hyatt Equipped."

And to the machine user comes final pay-off in the form of freedom from bearing wear and care—easier operation and longer equipment life—because Hyatts are on the job to help do a better job. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.

HYATT ROLLER BEARINGS

Save time and money on construction jobs



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And prepared by a staff of sixty-three well-known engineers, each a specialist in his field.

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Each one of these six volumes is a complete reference in itself on some aspect of structural engineering. The library

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▶**EXPLAINS** the principles of statics, reactions, moments and shears in beams and trusses, influence lines, methods of computing stresses in lateral trusses and portal bracing.

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UNIT PRICES BID BY CONTRACTORS

Correction:

A puzzle instead of unit prices appeared on page 152 in ENR Nov. 1, 1951 under the caption "Sewage treatment, N. Y."

By some unexplainable legerdemain the printer got the right headline, then he inserted a complete unit price report on a supersonic trainer building in Waco, Tex. He continued with part of the Middletown, N. Y. sewage treatment plant prices.

To unscramble this, please correct the headline on page 152 from "Sewage treatment, N. Y." to "Supersonic trainer building, Waco, Tex." and mark out the line "continued on following page." On page 155 under "Sewage treatment, N. Y.," add a note: "for full report see ENR Nov. 15, p. 62."

This full report follows:

Sewage treatment, N. Y.

Additions to the Middletown, N.Y. primary sewage treatment plant at a cost of $653,610, will provide secondary facilities. Five contractors submitted bids April 23, 1951 to Geary W. Chumard, Commr. of Public Works. Barker & Wheeler, Albany, N. Y. and H. C. Carpenter, Middletown are engineers.

Work started 10 days after award and is to be completed with 1.5 years. All materials are furnished by the contractor. Equipment is designed for the head that exists between present primary tanks and bed of brook into which effluent will be discharged. The job is 1 mi from the railroad.

Wages range from $2.75 for bricklayers, $2.25 for carpenters, to $1.75 for semi-skilled and $1.65 for common labor. Bidders include:

1C	P. J. Carlin Constr. Co., New York, N. Y.	$853,610
2	Kuchar Bros., Montvale, N. J.	857,082
5	Welsbach Corp, St. Joseph, Mich.	761,000

Bids: 4-23-51 Items	Unit	Quantity	Unit prices 1 C	2
Earth exc & backfl	cy	23,400	$2.50	$3.00
Rock excavation	cy	20	15.00	15.00
First cl conc	cy	2,200	60.00	61.00
Second cl conc	cy	5	40.00	50.00
Third cl conc	cy	100	30.00	35.00
Metal reinf	lb	242,500	0.16	0.175
Misc metals	lb	8,200	0.50	0.65
Pipe railing	ft	524	5.00	3.00
B & S C I pipe	ton	185	275.00	260.00
B & S C I pipe specials	ton	40	500.00	460.00
Fl C I pipe specials	ton	10	600.00	600.00
36" Sl gates & oper strs	ea	3	2,500.00	2,200.00
24" Sl	ea	2	1,500.00	1,400.00
18" Sl	ea	1	1,000.00	800.00
14" Sl	ea	2	900.00	600.00
6" Fl plug valves	ea	7	175.00	150.00
8" Fl plug valves	ea	8	250.00	270.00
Filter stone	cy	2,150	6.00	7.00
Filter underdrains	sy	1,822	10.00	6.75
Rot distr for 105' dia filters	ls	1	22,000.00	20,000.00
Clarif equip for 105' dia final tanks	ls	1	37,000.00	38,000.00
Digester equip compl	ls	1	18,000.00	20,000.00
Adjustable weirs & baffles in weir chamber	ls	1	3,500.00	2,500.00
Sand for sludge beds	cy	130	7.00	6.00
Stone for sludge beds	cy	170	8.00	7.00
Lumber for sludge beds	ls	1	1,000.00	800.00
Underdr sys for sl beds	ls	1	1,500.00	1,000.00
Gl enclos & monorail sys for sl beds(use present monorail sys)	ls	1	67,000.00	70,000.00
Pump equip, valves, piping & controls	ls	1	23,000.00	27,600.00
Pump station superstr	ls	1	18,000.00	16,500.00
Storm water inlets & drain line compl	ls	1	1,500.00	1,200.00
Water line, viva & hyd compl	ls	1	7,500.00	4,800.00
30" RC pipe in pl	lf	985	12.00	8.75
Manholes	ea	6	300.00	280.00
Scuppers in final tank	ls	1	8,000.00	6,200.00
Sl pump equip compl	ls	1	7,000.00	6,200.00
Improvements to present digesters	ls	1	18,000.00	24,000.00
Trans & recording equip for Parshall flumes	ls	1	3,000.00	2,300.00
Hose valves in sl beds	ls	1	200.00	130.00
Gravel for rdways and sidewalks	cy	125	8.00	5.00
Misc. small piping, etc	ls	1	7,000.00	5,500.00
1.9" D.G. valve and box & 18" connect to pres clarifier tanks	ls	1	1,500.00	700.00
Electrical work	ls	1	22,000.00	20,000.00
Fdn stone or grav	cy	100	7.00	7.00
Wooden foundation piles	lf	500	4.00	3.00
Vit tile underdr, compl	lf	820	4.00	3.00
(Alt) glass enclos & monorail sys for sl beds (new monorail system)	ls		70,000.00	73,000.00

Storm drain, Baltimore, Md.

The City Bureau of Sewers, Baltimore, received nine bids July 5 for a $40,000 storm drain in the city. John J. Hunt is sewerage engineer.

No unusual difficulties are anticipated. Back-hoe will be used for excavation, R4 dozer for backfill, ready-mix concrete for cast-in-place structures. Work started Aug. 1 and was to be completed in 60 working days. Contractor furnishes all materials.

Wages prevailing range from $3.00 to $2.00 for skilled labor, $1.90 to $1.50 for semi-skilled and $1.35 per hour for common labor.

Bidders include:

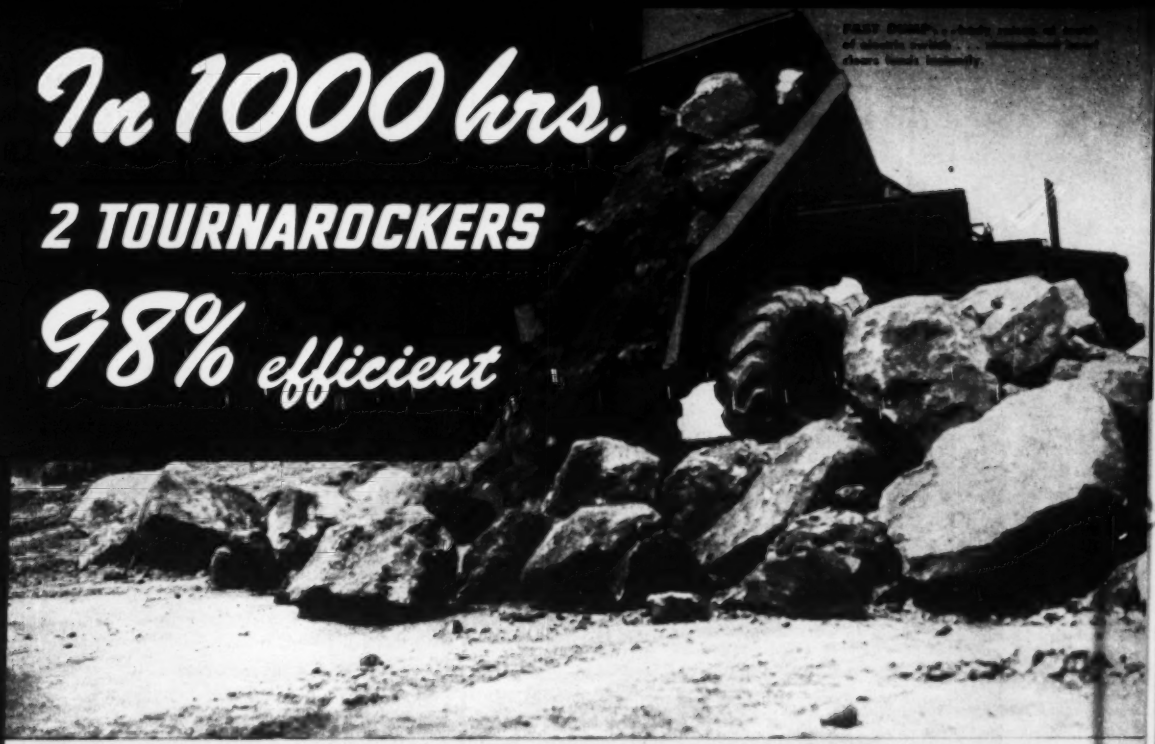
1C	Frank L. Carozza Constr. Co., Baltimore	$39,961
2	Libertini Constr. Co., Baltimore	42,329
9	Columbia Constr. Corp., Baltimore	54,077

Bids: 7-5-51 Items	Unit	Quantity	Unit prices 1 C	2
Exc for 42" RC pipe drain, etc	lf	285	$2.50	$2.70
36" RC pipe dr w/enc, ets	lf	92	5.00	3.00
36" RC pipe dr w/o/enc, ets	lf	80	10.00	8.00
33" RC pipe dr	lf	436	3.00	4.00
30" RC pipe dr etc	lf	80	10.00	2.50
27" RC pipe dr etc	lf	380	3.00	3.30
24" RC pipe dr	lf	736	2.00	3.00
18" VP dr	lf	36	10.00	2.00
15" VP dr	lf	135	3.00	1.50
15" VP inlet conn	lf	125	3.00	4.00
15" VP inlet conn	lf	315	3.00	3.00
F&I 8" underdr	lf	2,000	1.25	1.35
Exc below sub-grade	cy	20	5.00	5.00
Gravel refill	cy	20	6.00	6.00
Test pits	cy	10	4.00	4.00
F&I 42" RC pipe drain	lf	253	10.50	10.50
36" RC pipe drain	lf	148	8.00	9.30
33" RC pipe drain	lf	420	7.00	8.00
30" RC pipe drain	lf	40	6.00	6.50
27" RC pipe drain	lf	501	5.00	5.80
24" RC pipe drain	lf	725	4.00	4.25
18" VP drain	lf	36	4.00	4.00
15" VP drain	lf	131	4.00	2.75
18" VP inlet conn	lf	133	4.00	4.00
15" VP inlet conn	lf	345	4.00	2.75
Standard manholes	lf	120	30.00	24.00
Spec "H" comb. inlet	lf	12	100.00	60.00
Double "H" comb. inlet	lf	9	100.00	110.00
"H" comb. inlet	lf	40	25.00	50.00
"E" comb. inlet	lf	28	25.00	35.00
"J" inlet	lf	3	100.00	30.00
Cl "A" concrete	cy	20	30.00	35.00
Cl "B" concrete	cy	70	20.00	25.00
Cl "C" concrete	cy	80	20.00	20.00
Vit brick	cy	11	50.00	40.00
Ord brick	cy	40	30.00	60.00
Reinf bars	lb	2,480	0.15	0.15
Cinders	cy	20	5.00	3.00
Crusher-run stone	ton	135	2.00	3.00

In 1000 hrs.

2 TOURNAROCKERS

98% efficient



At New Haven, Connecticut, Fred Onuparik Construction Company tackled a difficult hauling problem. The job involved moving 70,000 cubic yards of sandstone from a short 1700′ stretch to relocate heavily-traveled U. S. 1 around the city's business district. Both loading and dumping areas were narrow and restricted . . . haul roads, rocky and rough. Mobile, high-speed, off-road haulers were needed for lowest cost operation . . . Onuparik's LeTourneau Distributor had the answer . . . 2 rear-dump, 16-ton C Tournarockers.

Teamed with a 1¾-yd. shovel and working 2000′ cycles, the 2 big, rubber-tired "C's" delivered up to 1200 cubic yards of heavy shot rock per day. Each 16-ton rig took 8 to 10 passes from the well-heaped dipper . . . carried 10 pay yards per load. "We're very well pleased with this performance," reports Owner Fred Onuparik, who later used his 2 LeTourneau rear-dump haulers on a 55,000-yd. relocation of Connecticut State Rt. 109 between Thomaston and Watertown.

Handling mostly rock and gravel, Onuparik's rigs worked approximately 1000 hours on these 2 jobs, with a mechanical operating efficiency of 98%. Both 165 h.p. "C's" were driven job-to-job under their own power . . . completing the 45-mile trip from New Haven to Thomaston through very heavy traffic in 3 hours.

Ability to maintain high standards of output and mechanical efficiency under all job conditions is the reason why progressive dirtmovers like Onuparik are turning to rear-dump Tournarockers for low-cost hauling of rock, gravel, and other materials. Your LeTourneau Distributor will be glad to show you job-proved facts and production figures on *new* 18-ton "C's", as well as on 9, 35, and 50-ton Tournarockers. Call him, or write TODAY.

BIG TARGET... Tournarocker's 12.5' w. s. top opening speeds shovel loading . . . reduces spillage.

LETOURNEAU EQUIPMENT

R. G. LeTOURNEAU, INC., Peoria, Illinois

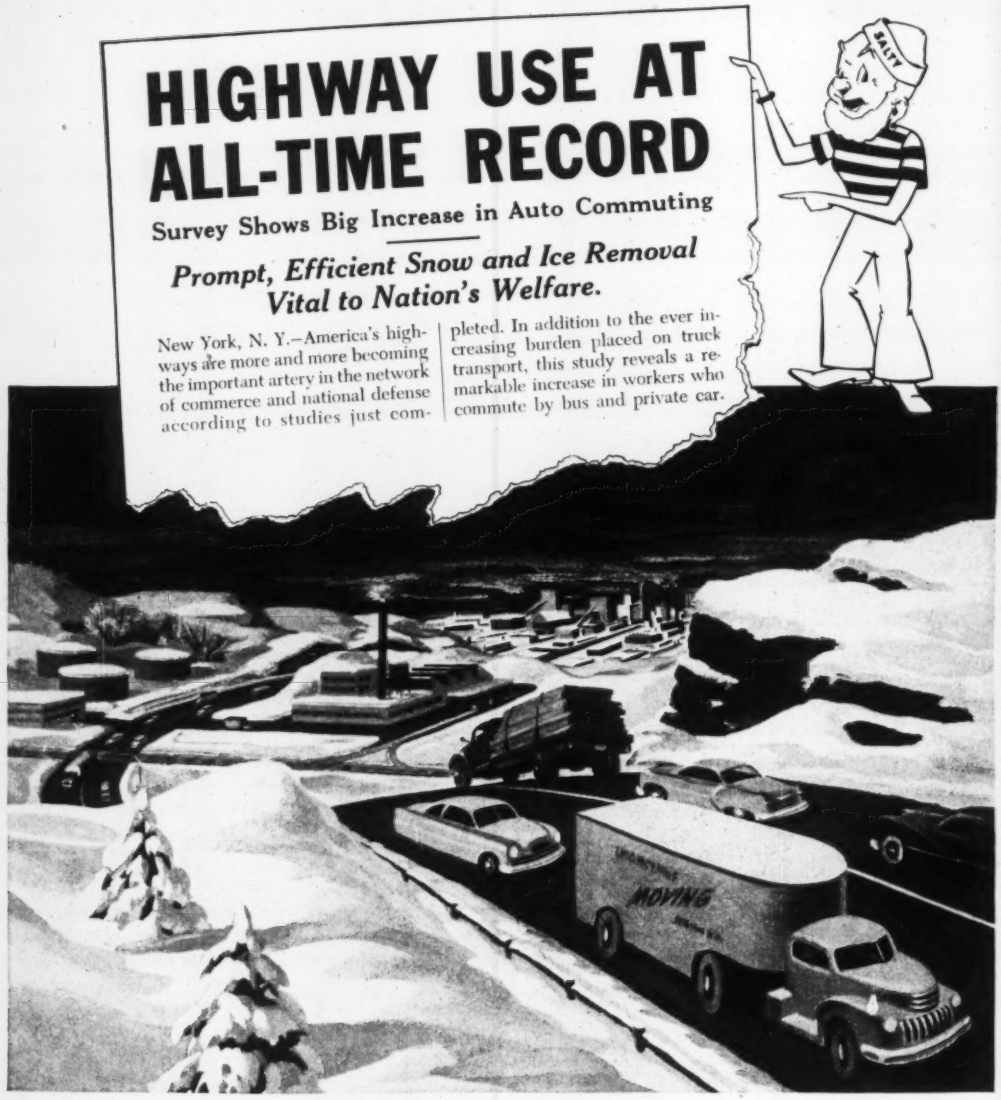
HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

HIGHWAY USE AT ALL-TIME RECORD

Survey Shows Big Increase in Auto Commuting

Prompt, Efficient Snow and Ice Removal Vital to Nation's Welfare.

New York, N. Y.—America's highways are more and more becoming the important artery in the network of commerce and national defense according to studies just completed. In addition to the ever increasing burden placed on truck transport, this study reveals a remarkable increase in workers who commute by bus and private car.



A BARE Pavement...The Only SAFE Pavement

Exclusive use of STERLING *Auger-Action* ROCK SALT makes snow and ice removal faster, easier, more economical than outmoded abrasive chemical methods. Each coarse rock salt crystal bores through ice and snow right down to the pavement. Here it changes to brine that breaks the bond between the ice and the road surface. Heavy traffic spots clear themselves with passage of vehicles. Other areas come summer-clear with one pass of the plow or scraper—to give you a *bare, safe pavement.*

KEEP THIS INCREASED TRAFFIC MOVING at 1/2 the Cost—1/10 the Time with STERLING Auger-Action ROCK SALT

Experience Proves It! Here's How One Snow Belt County Saved Time and Money With Sterling Auger-Action Rock Salt

Comparative costs of protecting icy highways with treated sand and rock salt

SAND MIXED WITH ROCK SALT:

Royalty	$ .10
Loading	.25
Haul, 5 miles at 8¢	.40
Piling with bulldozer	.15
Treating with salt at 50 lbs. per cu. yd.	.48
Reloading at time of storm	.25
Average haul, 10 miles at 8¢	.80
Spread	.10
Total cost per cu. yd.	**$ 2.53**
Use of 3 cu. yd. per mile at $2.53	**7.59**

STRAIGHT ROCK SALT:

CC Grade Rock Salt (400 lb. per mile, computed for 5-ton load):

5 tons of bulk salt at $12.95 per ton	$64.75
Loading, 5 tons at 25¢ per ton	1.25
Average haul (30 miles at 8¢ per ton-mile) 5 tons	12.00
Spread (mechanical) 5 tons at $1.00	5.00
	$83.00
$83.00/5 ton ... per ton =	**16.60**
$83.00/25 miles ... per mile =	**3.32**

UNIT SAVINGS:

$7.59 cost per mile with treated sand

$3.32 cost per mile with Sterling Rock Salt

$4.27 SAVING PER MILE EACH ICING IN FAVOR OF ROCK SALT

Mileage of state highways = 216 miles

ESTIMATED SAVING EACH STORM:

216 x $4.27 ... $922.32

Safe Pavements Are More Vital Than Ever!

For a Safer Winter . . . ORDER NOW

STERLING AUGER-ACTION ROCK SALT

Comes in carloads, bulk, or 100-lb. bags

INTERNATIONAL SALT COMPANY, INC.
Scranton 2, Pa.

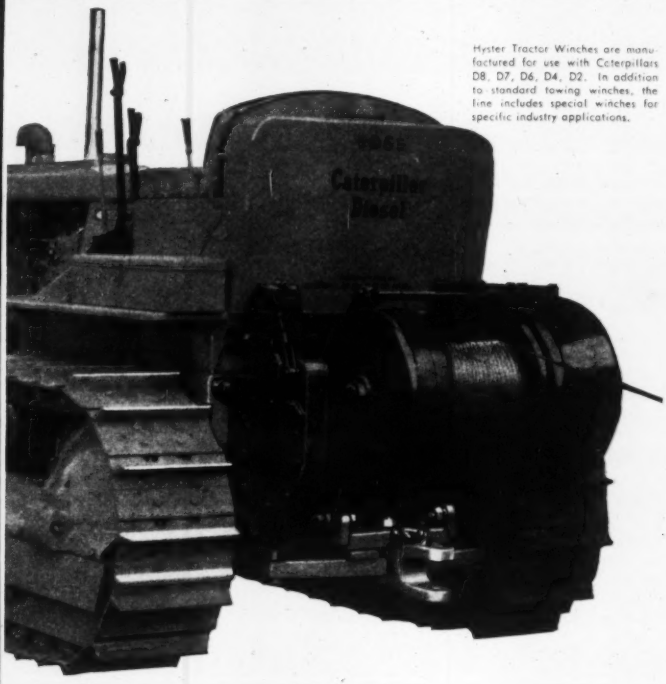
More than 40,000 satisfied owners of

HYSTER® *Tractor Winches*

Hyster Towing Winches increase tractor drawbar pull by as much as 63% when utilizing the maximum line pull of the winch. They are used to —

- ✔ **MOVE** heavy equipment.
- ✔ **RESCUE** heavy trucks or pieces of equipment that are mud-bogged.
- ✔ **PULL** the tractor itself out of mud or other situations that have incapacitated the tractor.
- ✔ **INSURE** against work stoppage or down-time on any project using equipment.
- ✔ **ASSIST** in stump and land clearing operations.
- ✔ **INCREASE** production in logging operations through the use of arch-logging methods.
- ✔ **GROUND SKID** or pan skid logs.
- ✔ **YARD** logs.
- ✔ **PERFORM** innumerable lifting jobs in conjunction with crane attachments.

Hyster's complete line of tractor tools includes winches, yarders, donkeys, cranes, logging arches and sulkies®; Grid Rollers for bituminous road salvage; and Hystaway®, the 5 in 1 tool that includes dragline, clamshell, crane, shovel and backhoe.



Hyster Tractor Winches are manufactured for use with Caterpillars D8, D7, D6, D4, D2. In addition to standard towing winches, the line includes special winches for specific industry applications.

Sold and Serviced for more than 20 years by CATERPILLAR-HYSTER dealers all over the world

A high percentage of all Caterpillar Diesel tractors are equipped with Hyster winches.

Caterpillar dealers around the globe—more than 400—sell and service Hyster towing winches for Caterpillar-built tractors.

Hyster towing winches are used in these basic work classifications: CONSTRUCTION, INDUSTRIAL, LOGGING, MINING, OIL and GAS, MILITARY, AGRICULTURE, TRANSPORTATION, GOVERNMENT.

Any Caterpillar dealer will gladly tell you about Hyster tractor winches.

HYSTER COMPANY

2953 N. E. Clackamas, Portland 8, Oregon
1853 North Adams Street, Peoria 1, Illinois

World's Largest Manufacturer of Tractor Winches

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Me., South Portland**—B.A. 11/21—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., repairing northwest seawall and roads, U. S. Naval Reserve Training Center, NOY 29533, Spec. 30315.

† **Connecticut**—BA 11/26—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., channel imprvs., Norwalk River, Norwalk, Serial No. 19-016-52-11. Extended date. CD 9/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Hillsgrove, R. I. LB **$3,500,673**, est. $3,800,000. state hy. and bridge constr., Rte. 1, exten. Newburyport Turnpike to N. H. border, Fl 62-(6), Boxford-Rowley-Georgetown-Newbury, Essex Co.

Central Constr Co., 6 Beacon Ave., Lawrence, **Mass.** LB **$306,814**, est. $335,000. hy. reconstr. and bridge, S-13 (6), Brimfield. Bids Oct. 30. CD 10/11 and 10/16.

BUILDINGS

LOW BIDS AND CONTRACTS

T. W. Cunningham, Inc., 38 Columbia St., Bangor, Me. CA **$250,000.** GARAGE, WORKSHOP and OFFICES, city farm property, BANGOR, ME. **Bangor Transit Trucking Co.**, Bangor, Me. Alonzo J. Harriman, Inc., 292 Court St., Auburn, Me., archt.

Construction Units, Inc., 294 Washington St., Boston, Mass. LB **$600,000.** 50 veterans' HOUSING Units, Proj. 200-2, BROCKTON, MASS. Brockton Housing Auth., N. Main St., Brockton, Mass. Bids Oct. 24. CD 10/9.

Wexler Constr. Co., 2 Elm Pl., Brookline, Mass. LB **$615,615**, SCHOOL, Birds' Hill Section-Broad Meadow Rd., NEEDHAM, MASS. Town, Needham, Mass. Bids Oct. 24. CD 10/16.

R. L. Whipple Co., 44 Portland St., Worcester, Mass. CA **$85,000.** FOUNDRY addn., extension, WORCESTER, MASS. Standard Foundry Co., Southgate St., Worcester, Mass. G. Adolph Johnson, 390 Main St., Worcester, Mass. Certificate of Necessity Granted.

Frank Rubino & Sons, Inc., Hamden, Conn. Owner Builds. **$800,000**, 68 HOUSES, 135 acre tract north of Park Ave. off Blue Hills Ave. Extension, BLOOMFIELD, CONN.

John Zandonella, 70 Chase St., Bridgeport, Conn., LB, **$552,000**, Woodmont Elementary SCHOOL, Brewster Rd., MILFORD, CONN. Town Bd. Educ., Town Hall, Milford, Conn. Bids Oct. 22. CD 10/8.

▲ **The Bent Constr. Co.** and **The Stevens Constr. Co.**, 50 State St., Hartford, Conn., CA **$2,220,000**, 200 HOUSES, Prospect Hill, WAREHOUSE POINT, CONN. Prospect Hill Homes, 50 State St., Hartford, Conn. Loomis & Sullivan, 57 Farmington Ave., Hartford, engrs. Adolph Feinberg, 1127 Main St., Hartford Conn., archt.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

Pa., Buena Vista—B.A. 11/19—Elizabeth Twp. Auth. at Water Works and Office, First St., Contr. 1, 300,000 gal. steel standpipe; Contr. 2, standpipe fdn. and appurtenances. Plans deposit $10. The Chester Engineers, 210 East Park Way, Pittsburgh 12, consult. engrs.

N. Y., Brooklyn—B.A. 11/20—President Brooklyn Boro, Boro Hall, Zone 2, relief sewers 17 Ave. from 60 to 50 Sts.

Md., North Beach—B.A. 11/24—**Mayor** & Town Council, North Beach, 37,500 ft. 6- to 10-in. sewerage system, manholes, brick, concrete, cinder block pumping station. Plans deposit $20, Rummel, Klepper & Kahl, 1021 N. Calvert St., **Baltimore, engrs.** CD 12/12/46.

N. Y., Long Beach—B.A. 11/26—Maurice J. Fleischman, city mgr., City Hall, Contr. I, general constr., water treatment plant; Contr. II, heating, ventilating, and plumbing; Contr. III, electrical work. Plans deposit $25 general constr. $10 each. Contrs. I and II. Alexander Potter Assoc., 50 Church St., New York, Zone 7, consult. engrs. CD 10/17.

N. Y., Newburgh—B.A. 11/26—**Fred D. Bayne**, city mgr., City Hall, 81 Broadway, distr. reservoir and appurtenances, approx. 137 ftx91 ft., and 23 ft. deep incl. gate chamber, piping, grading, and appurtenances; connecting pipe line of 12 and 20 in. c.i. pipe approx. 1,000 ft. long and 21 in. tile pipe drain line, approx. 30 ft. long. Plans deposit $25. Buck, Seifert & Jost, 112 E. 19 St., New York, Zone 3, consult. engrs.

BIDS ASKED—BUILDINGS

Md., LaPlata—SCHOOL—B.A. 11/20—Charles Co. Bd. Educ., La Plata, 1 story, 150x200 ft., brick, cinder block, L-shaped school, Port Tobacco, $300,000. Plans deposit $25. Fred Tilp, 1620 Second St. N.W., **Wash., D. C., archt.**

N. J., Totowa—NURSERY BLDG., etc.—B.A. 11/20—At office Fred V. Ferber, Dir. Div. Purchase & Property, State House, W. State St., Trenton 7, N. J., general work, structural steel, plumbing, heating and ventilating and electrical work in connection with nursery bldg. and housing for Patients at North Jersey Training School. Plans deposit $25.

† **Pa., Wilkes-Barre**—WAREHOUSE—B.A. 11/20—Veterans Admin., Munitions Bldg., Wash. 25, D. C., warehouse bldg., incl. roads, walks, grading, drainage, plumbing, heating, electrical work, outside services, etc., Spec. 51197.

† **N. Y., New York**—BACHELORS' QUARTERS—B.A. 11/20—U. S. Eng., 80 Lafayette St., Zone 13, bachelors quarters, Type 4 Weather Station.

† **Md., Bethesda**—MAINTENANCE—B.A. 11/21—General Service Admin., Pub. Bldgs. Service, 19 and F Sts. N. W., Wash., D. C., grounds maintenance bldg. 22 for National Institutes of Health, Proj. No. 18-063. Plans deposit $10. CD 5/27/48.

▲ **N. J., Paterson**—HOUSING—B.A. 11/27—Housing Auth. of Paterson, City Hall, 498 family housing on 2 acre site at 22 Ave. and E. 35 St. and five 8 story and 9 three story bldgs. $5,079,000. Kelly & Gruzen, 80 Fifth Ave., New York 11, N. Y., archts. CD 7/27/50.

N. J., Princeton—HOUSING—B.A. 11/29—Princeton Housing Auth., Princeton, housing, $800,000. Mathew C. Fleming, 10 Nassau St., archt. CD 2/21.

SOON LETS CONTRACT—BUILDINGS

N. J., Teaneck—LABORATORY—Ledoux & Co., Inc., 155 6 Ave., New York, 13, N. Y., soon lets contract metallurgical testing laboratory, Alfred St. $300,000. Lathrop Douglass, 518 5 Ave., New York, 17, N. Y., archt. CD 5/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

PENNSYLVANIA—State Hy. Dpt., North Office Bldg., Harrisburg,

A. B. Cole, Meshoppen, Pa., CA. **$829,357**, one I-beam bridge over south branch of Tunkhannock Creek and bridge extens., divided highway, rein.-con. pavement 24 ft. wide on each side of concrete or earth divisor, exent. existing arch; rein.-con. pavement 24 ft. wide and crushed aggregate base with bit. surf. 1.82 mi. long east and west of Lackawanna-Wyoming Co. line in vicinity of Factoryville, U.S. 11 (**Lackawanna Trail**) Lackawanna and Wyoming Counties. Bids Sept. 7. CD 9/12, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Hempt Bros., R. D. 1, Camp Hill, Pa., CA. **$518,385**, crushed stone base with bit. surf. 22 ft. wide 3.11 mi., extend rein.-con. structure over Miney run and rein.-con. arch over Branch of Miney Run, T. R. 16 and 116, in Hamiltonban and Liberty Twps., Adams Co. Bids Oct. 11. CD 10/16, under LB.

C & T Constr. Co., Brick St., Collingswood, N. J., LB. **$597,068**, Contr. 1, primary sewage treatment plant, RIDLEY PARK, PA. Central Delaware County Auth., Springfield, Pa. Bids Oct. 17. (Correction—price). CD 10/31, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Belli Co.**, Broad St. Bank Bldg., Trenton, N. J., LB **$2,227,000**, general construction;

William F. Hindley Co., 1735 N. Olden Ave., Trenton, N. J. LB, **$306,890**, plumbing work, for 8 story 300-bed St. Francis HOSPITAL addn., **Hamilton Ave.** and Chambers St., TRENTON, N. J. Sisters of St. Francis, Glen Riddle, Pa. Bids Oct. 30. CD 10/4.

† **Brotherton Constr. Co.**, 1035 S. 21 St., Harrisburg, Pa., CA. **$638,444.** ADMINISTRATION bldg. and site imprvs. at General Depot, No. 52-18, NEW CUMBERLAND, PA. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md., Bids Oct. 9. CD 10/19, under LB.

▲† **Hughes-Foulkrod Co.**, 1505 Race St., Phila., Pa., CA. **$4,113,000.** 3 WAREHOUSES, permanent type, and site preparation, grading, NEW CUMBERLAND, PA. Dpt. Army, 24 St. and Maryland Ave., Baltimore Md. Bids Sept. 14. CD 10/19, under CA.

Broadlawn Homes, Melrose Park, Pa., Separate Contracts. Approx. **$600,000.** RESIDENTIAL DEVELOPMENT, Walker St., PHILA., PA. **Henry S. Berg, 1411** Walnut St., Phila., Pa., archt.

Edward A. Reider, 110 S. 4 St., Reading, Pa., CA. **$545,224.** NURSES HOME, READING, PA. St. Joseph's Hospital, 12 and Walnut St., Reading, Pa. CD 10/17, under LB.

Chemung Valley Corp., Sayre, Pa., CA. **$750,000.** Mfg. PLANT, TOWANDA, PA. Sylvania Electric Products, Inc., 121 Loring Ave., Salem, Mass. **Clarence Wagner,** 475 William St., Williamsport, Pa., archt.

Colwill Constr. Co., Inc., 2114 Maryland Ave., Baltimore, Md. LB **$598,987.** BOILER HOUSE addn., incl. 2 boilers, equip., Springfield State Hospital, SYKESVILLE, MD. State, Dpt. P. Imprvts., 506 Park Ave., Baltimore 1, Md. Jas. Posey & Assoc., 10 E. Pleasant St., **Baltimore, Md., engrs.** Van Rensselaer Saxe, 1701 St. Paul St., Baltimore, Md., struct. engr. CD 12/7/50.

F. H. Martell Co. Inc., 1023 20 St. N. W., Wash., D. C. LB **$646,070.** 2 story, 244x337 ft., brick Hillcrest Heights Elementary SCHOOL, Silver Hill, UPPER MARLBORO, MD. Prince George Co. School Bd., Court House, Upper Marlboro, Md. Ross & Walton, 1902 L St. N. W., Wash., D. C., archts. J. L. Faisant & Assoc., 121 W. 25 St., Baltimore, Md., struct. engrs. H. Walton Redmile, 1902 L St. N. W., Wash., D. C., mech. engr.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Ala., Birmingham—B.A. 11/20—Jefferson Co., Court House, constructing Lock Road 17. Approx. $60,000. Extended date. CD 8/10.

La., Vidalia—B.A. 11/20—Town, 9,875 lin. ft. water mains, 26,510 lin. ft. natural gas mains, Bedell & Nelson, 840 Union St., New Orleans, engrs.

Fla., Miami—B.A. 11/21—City, c/o Div. Engineering, 3342 Dinner Key Dr., storm sewers and pumping station in District SR-317. Extended date. Maurice H. Connell & Assocs., Langford Bldg., engrs. CD 8/24.

Fla., Miami—B.A. 11/21—City, Court House street paving in District H-496. CD 9/28.

† **S. C., Greenville**—GROUND CONTROL SYSTEM—B.A. 11/21—U. S. Eng., Customhouse, Charleston, ground control approach system at Donaldson Air Force Base. Extended date. CD 10/18.

Tenn., Winchester—B.A. 11/21—City, WW imprvs. J. Sanders Parker, 816 8th Ave. S., Nashville, engr. Extended date. CD 10/16.

† **Va., Fort Belvoir**—B.A. 11/21—U. S. Eng., First and Douglas Sts., N. W. Wash. 25, D. C., substructure floating bridge components repair facility, ENG 49-080-52 25 (21); superstructure, floating bridge components repair facility, ENG 49-080-52-26 (22). Bid date changed. CD 10/25.

† **Florida**—B.A. 11/27—U. S. Eng., P.O. Box 4970, Jacksonville, treatment of poolside slopes of Levees L-30 and L-33 L-37 Central and Southern Florida Flood Control, CIVING 08-123-52-22. Extended date. CD 10/24/51.

† **Fla., Green Cove Springs**—MOORINGS—B.A. 11/27—Dpt Navy, Officer in Charge of Construction, Box 365 Naval Base, S.C., revised moorings at U. S. Naval Station, NOY 70625. Plans deposit $10.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

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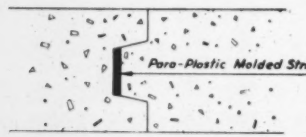

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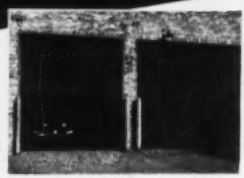

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† **Fla., Cocoa**—WATER, etc—B.A. 12/7—U.S. Eng., P. O. Box 4970, Jacksonville, water and sewer facilities in Base Technical Area, Patrick Air Force Base, Eng 65-B. CD 4/4.

† **Georgia and South Carolina**—B.A. 11/27—U. S. Eng. Post Office Bldg., Savannah, Ga., constr. 115 kv switchyard Clark Hill Proj., Savannah River Basin Savannah River Serial No. CIVENG 09-133-52-21. Extended date. CD 10/3.

† **Ky., Fort Campbell**—RUNWAYS, etc.—B.A. 11/27—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, runways, taxiways and apron, Campbell Air Force Base, Eng. 15-029-52-36. CD 9/28.

† **La., Alexandria**—HEATING SYSTEM—B. A. 11/27—U. S. Eng., 300 Broadway, Little Rock, Ark., convert present heating sys. to natural gas at Alexandria Municipal Airport, Eng. 03-050-52-16.

† **La., Lake Charles**—WAREHOUSE—B. A. 11/27—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., 1 story, 20x500 ft. supply warehouse, Lake Charles Air Force Base, Eng. 41-243-52-32. CD 9/20.

BIDS ASKED—BUILDINGS

N. C., Charlotte—PLANT—B.A. 11/20—J. N. Pease & Co., archts, 1191½ E. 5 St., ice cream plant, for Southern Dairies, Inc., 60 M St. N. E., Wash. 13, D. C. Plans deposit $50. Wm. C. Stohldrier, 125 Parkway Rd., Bronxville, N. Y., archt. CD 1/24, under LB.

N. C., Clinton—DWELLINGS—B.A. 11/20—Eastern Carolina Housing Auth., H. E. Powell, dir., Administration Bldg., Seymour Johnston Homes, Goldsboro, 70 DWELLINGS, N. C. 10-6; N. C. 10-7. Plans deposit $50. W. B. Griffin, Edwards Bldg., and Edwards & McKimmon, 743 W. Johnson St., Raleigh, archts. CD 10/19.

N. C., Winston-Salem—JAIL—B.A. 11/20—Bd. Comrs. Forsyth Co. D. C. Speas, chn., Court House, jail. Plans deposit $50. J. L. Williams & Assoc., Marion, Va. archts.-engrs. CD 5/2, under LB.

N. C., Goldsboro—HOUSING—B.A. 11/21—Eastern Carolina Regional Housing Auth., Administration Bldg., Seymour Johnston Homes, Goldsboro, 90 dwellings, N. C. 10, one mi. southeast of here. Plans deposit $50. W. B. Griffin, Edwards Bldg., and Edwards & McKimmon, 743 W. Johnson St., Raleigh, archts. CD 10/19.

Va., Halifax—HIGH SCHOOL—B.A. 11/21—Halifax Co., Consolidated High School. Approx. $300,000. Stainback & Scribner, 112 N. E. Third St., Charlottesville, Va., archts. CD 11/2/50.

† **Ky., Lexington**—WAREHOUSES—B.A. 11/22—U. S. Eng., P. O. Box 59, Louisville, Zone 1, two permanent warehouses, Lexington Signal Depot, Eng. 15-029-52-20. Plans deposit $15. Extended date. CD 10/17.

Ala., Oneonta—HOSPITAL—B.A. 11/27—Blount Co., hospital. Plans deposit $50. Chas. H. McCauley, Jackson Bldg., Birmingham, archt. CD 12/9/49.

Ga., Americus—HOUSING—B.A. 11/27—Americus Housing Auth., Americus, Housing Project GA 62-3, 50 housing units. Plans deposit $25. Abreu & Robeson, 147 Walton St. N.W., Atlanta, archts.

Miss., Indianola—SCHOOL—B.A. 11/27—Indianola Separate School Dist., 37,000 sq. ft. Colored Elementary School $300,000. Extended date. E. L. Malvaney, Millsaps Bldg., Jackson, archt. CD 10/25.

Ga., Atlanta—BOILER PLANT—B.A. 12/6—Bd. Regents, University System of Georgia, 20 Ivy St., S.E., boiler plant, altering existing boiler plant at Georgia School of Technology. Plans deposit $50. Robert & Co. Assoc., 96 Poplar St., N.W., archts.

Fla., Pensacola—SCHOOL—B.A. 12/12—City, high school. $900,000. Plans deposit $50. Frank J. Sindelar, 1224 E. Strong St., archt.

▲ **Fla., Cocoa**—HOUSING—B.A. 12/15—Brevard County Housing Auth., Cocoa, 167 housing units, $1,500,000. CD 4/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Wiley N. Jackson**, R. F. D. 4, Roanoke, Va., LB $2,130,855, relocation sect. of highway in area of Buggs Island Dam reservoir, east of Clarksville, incl. relocation 1½ mi. U. S. Rte. 58, destruction of rein.-con. bridge over Sandy Creek, dismantling 1,900 ft. double bridge over the Roanoke and Dan Rivers and erection of replacement for latter structure, VIRGINIA. U. S. Eng. foot of Front St., Norfolk, Va. Bids Oct. 25.

Cofer Constr. Co., 38 Wells Ave., N.E. Roanoke, Va. LB $75,464, WW imprvs., ROANOKE, VA. CD 8/8/50.

Boyd & Goforth, Pineville Rd., Charlotte, N. C., CA. $524,977, WW extens., imprvs., Sects. 1, 2, and 3, HENDERSON, N. C. City, Henry T. Powell, mayor, Henderson, N. C. Bids Oct. 18. CD 10/25, under LB.

Barnhill & Long, Inc., Tarboro, N. C., LB. $85,487. port facilities (water and sewerage systems), WILMINGTON, N. C. North Carolina State Ports Auth., 225 Princess St., Wilmington, N. C. Robert & Co., 96 Poplar St. N.W., Atlanta, Ga., engrs.

† **Acme Constr. Co.**, 271 N. Royal St., Mobile, Ala., CA, $556,784, ammunition area expansion, EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile, 7, Ala. Bids Oct. 23. CD 10/31, under LB.

ALABAMA—State Hy. Dpt., Montgomery, Ala. rejected bids Oct. 5 rejected, Proj. S-485 (1), Colbert Co., LB $60,521. CD 10/12, under LB.

† **Joseph Jurisich Co.**, 338 N. Peters St., New Orleans, La. CA $40,506. approx. 1,100 squares concrete slope pavement, Inv. 52-51, Plaquemines Parish, LOUISI-

ANA. U. S. Eng., foot of Prytania St., New Orleans 9, La. Bids Oct. 10, awarded Oct. 25. CD 10/3.

Louisville & Nashville R.R. Co., C. H. Blackman, ch. engr. 908 W. Broadway, Louisville 1, Ky. Owner Builds. $100,000. 5½ mi. railroad spur from Strawberry Lane yards to General Electric Plant, LOUISVILLE, KY.

BUILDINGS

LOW BIDS AND CONTRACTS

Charles W. Barger & Son, Lexington, Va., CA. $532,000. ACADEMIC SCIENCE bldg., LEXINGTON, VA. Virginia Polytechnic Institute, Lexington, Va., CD 9/18, under LB.

R. K. Stewart & Son, High Point, N. C., LB. $706,422, 777,248 cu. ft. LIBRARY, GREENVILLE, N. C. East Carolina Teachers College, F. D. Duncan, bus. mgr., Greenville, N. C. Bids Oct. 30. CD 10/10.

George W. Kane Constr. Co., Durham, N. C. CA. $895,227. Junior-Senior HIGH SCHOOL, RALEIGH, N. C. City Administrative Unit, Raleigh, N. C. Bids Oct. 3, awarded Oct. 30. CD 10/9, under LB.

Home Builders, Inc., Cayce, S. C., CA. Approx. $82,000. motor FREIGHT TERMINAL, COLUMBIA, S. C. Cooper Motor Lines, c/o contractor.

Kinard Constr. Co., Route 4, Box 378, Bessemer, Ala., CA. $560,788, HOUSING Projects Ala 69-1 and Ala 60-2, RUSSELLVILLE, ALA. Russellville Housing Auth., Russellville, Ala. Bids Oct. 16. CD 10/25, under LB.

Gentilly Homes, P. O. Box 8173, New Orleans, La. Owner Builds. $530,000. 64 HOMES, NEW ORLEANS, LA.

The Werner Co., 1320 Pierre Ave., Shreveport, La. CA $580,000. HOTEL addn., SHREVEPORT, LA. Youree Hotel, c/o contractor.

† **Blount Bros. Constr. Co.**, P. O. Box 1144, Montgomery, Ala., CA. $707,212, MOTOR bldg. and outside crane runaway at Arnold Engineering Development Center, TULLAHOMA, TENN. U. S. Eng., Box 2091, Tullahoma, Tenn. Bids Oct. 23. CD 10/2.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Mich., Detroit—B.A. 11/20—at Office G. R. Thompson, city engr., Dpt. Wks., Guardian Bldg., Contr. PW-674 Freud Ave. Outlet of Fox Creek Relief Sewer, approx. 1.26 mi. 16 ft. inside diam. monolithic concrete cylindrical sewer in tunnel, exten. from existing jct. chamber at Jefferson and Manistique via Manistique and Freud Aves. to proposed Freud Ave. Pumping Station at Conner Creek, approx. 300 ft. of 10 ft. inside diam. sewer for 3 station inlet connections. Plans deposit $15. CD 9/6.

▲ **Ill., Chicago**—B.A. 11/30—Dpt. Purchases, Contracts & Supplies, Room 401, City Hall, 6,450 ft. coffer dam will enclose the 61-acre filtration plant site near Navy Pier on north side to hold back water, $8,000,000. Plans deposit $25. CD 1/30.

BIDS ASKED—BUILDINGS

† **O., Columbus**—SHOP—B.A. 11/20—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., construct one box and crate shop, Columbus General Depot, Serial No. ENG 46-022-52-69. Extended date. CD 10/24.

O., Van Wert—GARAGE—B.A. 11/20—Dpt. P. Wks., 705 Ohio Dpts. Bldg., Columbus, Van Wert County Highway Garage. Plans deposit $5. H. G. Allen, c/o owner, cons. archt.

Ill., Oaklawn—SCHOOL—B.A. 11/26—School Dist. 229, Oaklawn, high school, $700,000, Madden & Connor, 164 E. 154 St., Harvey, archts. CD 5/1.

Mich., Corunna—HOSPITAL—B.A. 11/26—Bd. Supervs. Shiawassee Co., Kenneth Crawford, clk., brick, steel convalescent unit, Shiawassee County Hospital. Plans deposit $20 refundable, Clark R. Ackley, 1811 E. Michigan Ave., Lansing, archt. CD 3/13.

Wis., West Allis—SCHOOL—B.A. 11/26—Bd. Educ. 7510 W. National Ave., Milwaukee, 14, Wis. 3 story, part bsmnt., 118x118 ft., rein.-con., brick stone, blocks, Jefferson School adn., $480,000. Plans deposit $10. Lindl, Schutte & Assocs., 808 N. 3 St., Milwaukee, Zone 3, acrhts. and engrs. CD 12/15/49.

▲ **Ill., Chicago**—HOUSES—B.A. 12/4—Chicago Housing Auth., 608 S. Dearborn St., Chicago, Ill. 65 row houses—500 units, 133 and Langley Sts. $4,000,000. Naess & Murphy, 90 E. Jackson St., Chicago, 4, Ill., archts. CD 9/7/50.

▲ **Ill., Skokie**—FACTORY—Bids Asked—Croname, Inc., 3701 Ravenswood St., Chicago, Zone 13, 1 and 2 story, 600,000 sq. ft. FACTORY, at Touhy and Carpenter Sts., $5,000,000. Victor L. Charn, 4744 W. Rice St., Chicago, Zone 51, archt. CD 9/24.

Mich., Utica—STORAGE and HANDLING FACILITIES—Bids Asked—Packard Motor Car Co., 1580 E. Grand Blvd., Detroit, 1 story storage and handling facilities bldg. $82,000, Jackson & Moreland, 31 St. James Ave., Boston, Mass., engrs. CD 3/30.

SOON LETS CONTRACT—BUILDINGS

Ill., Chicago—FACTORY—Ideal Furniture Co., Green and 92 Sts., soon lets contract factory. $300,000. A. Epstein & Sons Co., 2011 Pershing Rd., Chicago, 9, Ill., archts. CD 9/5.

Mich., Cutlerville—HOME—Christian Reformed Church, Cutlerville, soon lets contract brick, masonry Children's

(Continued on page 72)

TIMBER
Builds 'em big and ships 'em far

Illustrated above are 150' American bowstring trusses, using Teco connectors, designed and fabricated by American Roof Truss Company in Chicago and erected by them in Albuquerque, N. M.

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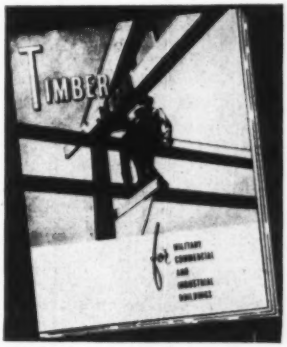

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Based on the findings of a survey conducted by leading water works engineers.

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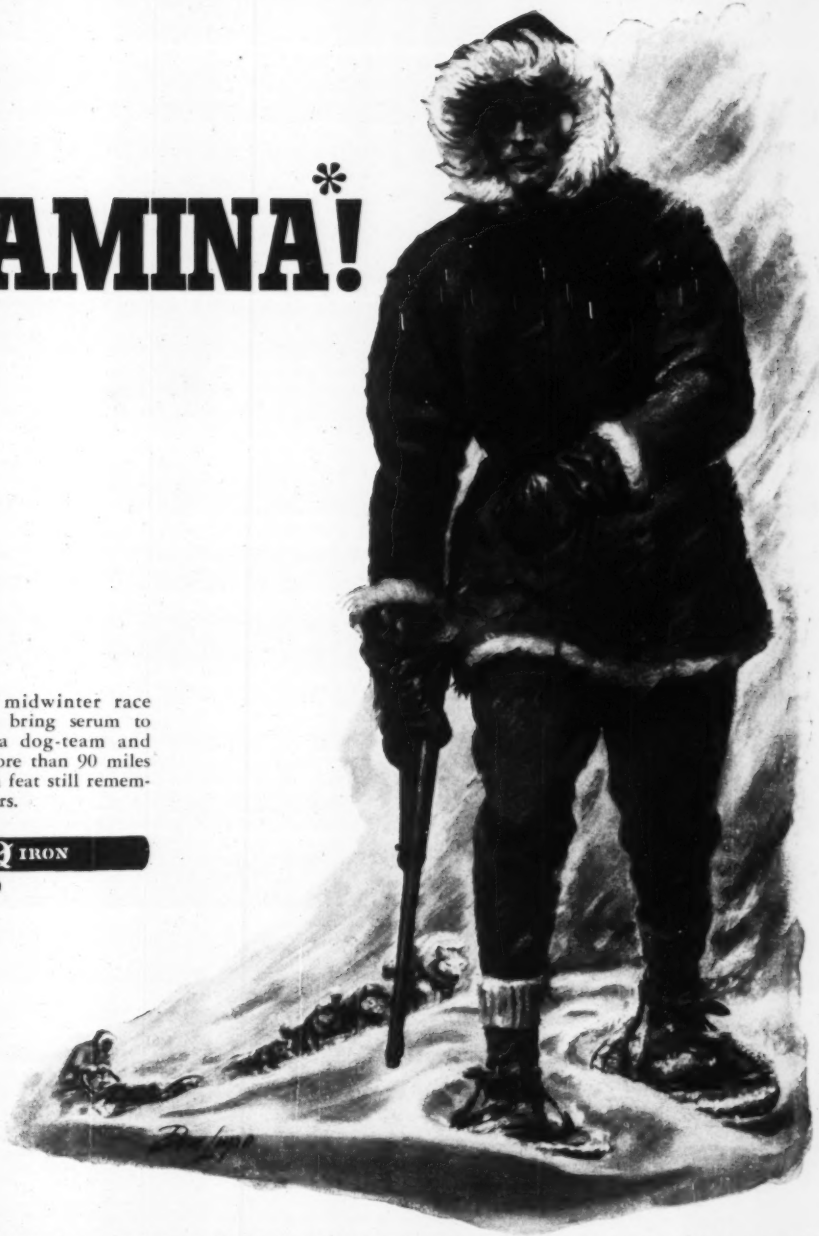

*In a 340-mile midwinter race against death to bring serum to Nome, Alaska, a dog-team and driver covered more than 90 miles in a single day—a feat still remembered after 25 years.

CAST IRON

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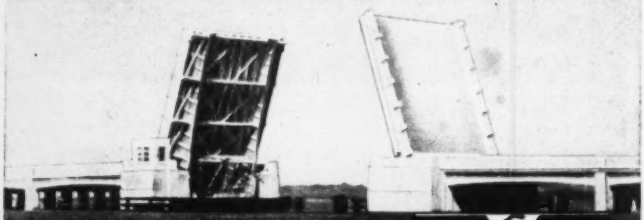

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EARLE GEARS

(Continued from page 69)

Home, $500,000, J & G Daverman Co., Keeler Bldg., Grand Rapids, archt. CD 10/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† Walter T. Dunlap & Co., Lexington, Neb., LB $239,111, est. $310,508 constr. 200 seepage relief wells and 11 prezometer tubes. Chain of Rocks Canal, Mississippi River adjacent to Granite City, Ill. and vicinity Madison Co., Ill., Inv. No. CIVENG 23-065-52-3, ILLINOIS. U. S. Eng., 834 U. S. Court House and Custom House, 1114 Market St., St. Louis, 1, Mo. Bids Oct. 30. CD 10/18.

▲ Wm. E. O'Neil Constr. Co., 2751 Slybourn St., Chicago, 14, Ill., CA, $2,660,000, two airplane hangars, CHICAGO, ILL. Transworld Airlines, Municipal Airport, Kansas City, Mo. Bids Sept. 10, awarded Oct. 26. CD 10/18, under LB.

Krug Excavating Co., 11835 Central Park Ave., Skokie, Ill., CA, $502,360, earth-diked sludge lagoons on 86 acres at Sewage Treatment Works, CHICAGO, ILL. Sanitary Dist. of Chicago, 910 S. Michigan Ave., Chicago, 5, Ill. Bids Sept. 27, awarded Oct. 22. CD 10/5, under LB.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison;

Victor Zeman, Maribel, Wis., LB, $104,238, Contr. 2, and gravel fill 9.789 mi. The Old U. S. H. 41-North County Line Road (S. T. H. 23-North County Line Section) Proj. F03-1 (29), U. S. Hy. 41, Fond du Lac Co.;

Braun Constr. Co., Fond du Lac, Wis., LB, $161,455, Contr. 3, prav. or crushed stone base course 9.789 mi. The Old S. H. 41-North County Line Road (S. T. H. 23-North County Line Section) Proj. F 03-1 (29), U. S. Hy. 41, Fond du Lac Co. Bids Oct. 30. CD 10/9.

Santucci Constr. Co., Skokie, Ill. CA $659,391, open cut work West Side Sewer; CA $287,931, end section East Side Interceptor, BAY CITY, MICH. City, George MacPhail, city mgr., Bay City, Mich. CD 10/25, under LB.

▲ W. J. Muehlenbeck, 1253 S. Water St., Saginaw, Mich. CA $766,600, West side interceptor sewer;

Drainage Contractors, Inc., 22148 Michigan Ave., Dearborn, Mich., CA $656,555, East side tunnel sewer;

W. J. Meagher & Sons, Inc., 1300 S. Water St., Bay City, Mich. CA $544,566. river crossing, and outfall sewer tube, BAY CITY, MICH. City, George MacPhail, mgr., Bay City, Mich., Grand total $1,967,681. CD 10/25, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Peter Becker, 308 W. Elizabeth St., Calumet City, Ill., CA, $550,000, HOSPITAL addn., HAMMOND, IND. St. Margarets Hospital, 25 Douglas Ave., Hammond, Ind. Awarded Oct. 23. CD 9/27, under LB.

Hope Constr. Co., 4720 W. Addison St., Chicago, 41, Ill., CA, $350,000, FACTORY, BELLWOOD, ILL. National Wheels & Parts Mfg. Co., Oak and 31 Sts., Bellwood, Ill. E. G. Steinbeck, 327 S. La Salle St., Chicago, 4, Ill., archt. Awarded Oct. 24. CD 4/19.

Carroll Constr. Co., 333 N. Michigan Ave., Chicago, 1, Ill., CA, $600,000, 3 story, Anti-biotic LABORATORY, NORTH CHICAGO, ILL. Abbott Laboratories, 14 and Sheridan Rd. North Chicago, Ill. Bids Oct. 11, awarded Oct. 23. CD 10/10.

Coath & Goss, 5103 W. Lake St., Chicago, 44, Ill., CA, $500,000, Wildwood SCHOOL, 6950 N. Hiawatha Ave., CHICAGO, ILL. Bd. Educ., 228 N. La Salle St., Chicago, 1, Ill. Bids Oct. 15, awarded Oct. 23. CD 10/25, under LB.

Heidel & Beck, 6235 S. Michigan Ave., Chicago, 39, Ill., CA, $300,000 3 story, 30,000 sq. ft. NURSERY, CHICAGO, ILL. Augustana Hospital, Sedgewick and Dickens Sts., Chicago, 14, Ill. Awarded Oct. 25. CD 9/19.

▲ Poirot Constr. Co., 2001 Pershing Rd., Chicago, 9, Ill., LB, $3,000,000, High School addn. DES PLAINES, ILL. Main Township High School, Dempster and Potter Sts. Des Plaines, Ill. Bids Oct. 22. CD 10/3.

▲ Darin & Armstrong, 2041 Fenkel St., Detroit, Mich. CA, $1,500,000. 3 story, brick, concrete FACTORY addn., alterations, DETROIT, MICH. Kaiser Mfg. Corp., 12801 Jefferson St., Detroit, Mich.

Campbell Constr. Co., 9301 Michigan Ave., Detroit, Mich. CA $110,000. 1 story, brick steel WAREHOUSE with OFFICES, Lyndon St., DETROIT, MICH. Barry Steel Corp., 302 United Artists Bldg., Detroit, Mich.

Campbell Constr. Co., 9301 Michigan Ave., Detroit, Mich. CA $140,000. 1 story, brick, FACTORY addn., alterations, Green St., DETROIT, MICH. Cummings-Moore Graphite Co., 1646 Green St., Detroit, Mich.

Lerner-Linden Constr. Co., 9940 Roselawn St., Detroit, Mich. CA $500,000. 2 story, bsmnt., brick, steel, concrete Elementary-Junior High Combination SCHOOL, ROYAL OAK, MICH. City, Bd. Educ., Royal Oak, Mich. Bids Oct. 10. CD 9/27.

A. W. Kutsche Co., 2924 W. Grand Blvd., Detroit, Mich. CA $905,937. 2 story, bsmnt., brick, steel, concrete Wayne Memorial High SCHOOL, WAYNE, MICH. Bd. Educ., Wayne, Mich. George D. Mason & Co., 409 Griswold St., Detroit, Mich., archts. CD 8/6/47.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Kan., Salina**—HOUSING—B.A. 11/20—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., rehabilitation Group 2 family housing, Camp Phillips, Smoky Hill Air Force Base, ENG 23-028-52-9. CD 10/30.

† **Arkansas**—B.A. 11/21—U. S. Eng., P.O. Box 60, Vicksburg, Miss., constr. approx. 500,000 cu. yd earthwork on north bank of Arkansas River in Jefferson Co, Serial No. CIVENG 22-052-52-57. CD 12/24/43.

† **Kan., Salina**—BUILDINGS—B.A. 11/26—U. S. Eng., 10 E. 17 St., Kansas City, Mo., Group B buildings at Smoky Hill Air Force Base, Eng. 23-028-11B. Plans deposit $25. CD 9/6.

† **Oklahoma**—B.A. 11/26—Dpt. Agriculture, c/o Soil Conservation Service, 3600 McCart St., Fort Worth, Tex., flood control detention reservoirs, earthfill embankments, etc. on Washita River watershed in Sandstone Creek watershed, approx. 9 mi. south and 3 mi. east of Cheyenne, No. 425-52.

Tex., Brownsville—B.A. 11/26—Brownsville Navigation Dist., Brownsville, water supply main. $90,000. Plans deposit $25.

† **Kan., Salina**—RAILROADS—B.A. 11/27—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., Rehabilitation railroads, extensions and rehabilitation, Smoky Hill Air Force Base, ENG 23-028-52-15. CD 9/6.

† **Tex., Amarillo**—APRON EXTENS.—B.A. 11/27—U. S. Eng., Box 61, Tulsa 2, Okla., apron extens. at Amarillo Air Force Base, Inv. No. Eng. 34-066-52-14. $375,000. Extended date. CD 10/9.

Tex., Fort Worth—B.A. 11/27—Tarrant County Water Control & Imprvt. Dist 1, c/o Joe B. Hogsett, pres., 502 Danciger Bldg., steel, concrete bridge over Trinity River E. 4 St. $400,000. Plans deposit $25. Freese & Nichols, 407 Danciger Bldg., engrs. CD 7/18.

† **Wyoming and Montana**—TRANSMISSION LINE—B.A. 11/27—Bureau Reclamation, Dpt. Interior, Cody, Wyo., Lovell-Yellowtail 115-kilovolt transmission line, Transmission Div., Missouri River Basin Proj., Spec. DC 3555. Extended date. L. N. McClellan, ch. engr. CD 10/2.

† **Wyoming**—B.A. 11/27—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Casper, switches, for Alcova Power Plant Switchyard, Kendrick Proj., Spec. CS-3570. L. N. McClellan ch. engr.

† **Tex., El Paso**—FUEL STORAGE—B.A. About 11/28—U. S. Eng., P.O. Box 1538, 2134 E. Central Ave., Albuquerque, N. M., constr. 4 rein.-con. 33x62 ft., igloss covered with earth fill, assist take-off fuel storage (A51-1), Biggs Air Force Base, Serial No. 29-005-52-11. Plans deposit $100. CD 10/19.

Minn., St. Paul—SCHOOL—B.A. 11/20—City, J. J. McDevitt, purch. agt., 253 City Hall, 1 story, brick Prosperity Heights School, E. Ivy Ave. and Birmingham St. $350,000. Ellerbe & Co., E. 505 First National Bank Bldg., archts. CD 2/26.

† **Kan., Topeka**—WAREHOUSE—B.A. 11/29—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., 60,000 sq. ft. warehouse, adjoining heating plant, Forbes Air Force Base, ENG 23-028-52-12. CD 7/2.

BIDS ASKED—BUILDINGS

Tex., College Station—HOSPITAL and BARN—B.A. 11/23—A & M College of Texas, College Station, 40,000 sq. ft., masonry concrete veterinary hospital and barn, slab fdn. $395,000. Plans deposit $50. Extended date. Arch C. Baker, 331 Admin. Bldg., College Station, college archt. CD 10/19.

† **Wyoming**—RESIDENCES—B.A. 11/27—Bureau Reclamation, Dpt. Interior, Casper, twelve 2-bedroom residences at Alcova Dam Government community Kendrick Proj., Spec. 703C-219; adv. ENR 11/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IOWA—State Hy. Comn., Ames,

J. C. Blunk Constr. Co., Ottumwa, Ia., LB, $69,665, b. conc. resurf. 2.968 mi. P-534 Appanoose Co. LB $70,644, b. conc. resurf. 3.692 mi. FN-209, Davis Co.; LB $105,882, b. conc. resurf. 5.64 mi. P-551 Lucas Co.

Hallett Constr. Co., Crosby, Minn., LB $252,553, b. conc. resurf. 16.991 mi. P-1026, Benton and Tama Counties, LB $279,628, b. conc. resurf. 15.518 mi. P-957, Plymouth Co.

J. W. Craig Co., 1814 N. E. California St., Minneapolis, Minn., LB, $269,784, b. conc. resurf. 19.307 mi. P-1027 Benton, Iowa and Linn Counties.

Roverud Constr. Co., Spring Grove, Minn., LB $223,258 rolled stone base and bit. 6.421 mi. F-378 (14), Dubuque Co. Bids Oct. 30. CD 10/18.

IOWA—State Hy. Comn., Ames,

A. Colson Constr. Co., Waterloo, Ia., $78,825, bridges, culverts, P-289 Crawford Co.; LB $84,767, bridges, culverts S-1017 (1), Fayette Co.

Brogan Constr. Co., 307 Masonic Temple Bldg., Des Moines, Ia., LB, $90,489, bridges, culverts SN-854, Green Co. Bids Oct. 30. CD 10/18.

▲† **Clarkson Constr. Co.**, 26 and Jefferson Sts., Kansas City 8, Mo. CA $1,631,522, est. $1,306,556. Restore flood protection structure, Kaw River, Kansas Central Industrial Dist., ENG 23-028-52-65. KANSAS. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Oct. 12 awarded Oct. 15. CD 10/2.

† **R. G. Aldridge**, 1610 Nebraska St., Kansas City, Kan. CA $515,380. Lot 2, Part I, flood protection structures restoration in Part I, Armourdale Dist., ENG

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(Based on an actual occurrence)

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23-028-52-62, KANSAS. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Awarded Oct. 5. CD 9/26.

▲ **OKLAHOMA**—Oklahoma Turnpike Auth., Capitol, Oklahoma City, Zone 5,

Dahlgren & Brooks, Insurance Bldg., Oklahoma City 2, Okla. CA. $608,168, est. $600,548, b. conc. on crushed rock paving 5.551 mi. near Bristow, Creek Co.;

Standard Paving Co., 2119 E. 11 St., Tulsa, Okla., CA. $351,115, est. $349,225, b. conc. on crushed rock paving 3.382 mi. near Sapulpa, Creek Co.;

H. D. Youngman, Baxter Springs, Kan. CA. $615,130, est. $605,963, b. conc. on crushed rock paving 5.929 mi. near Bristow, Creek Co.;

Amis Constr. Co., 1647 Exchange Ave., Oklahoma City 8, Okla., CA. $822,164, est. $773,890, b. conc. on crushed rock paving 7.563 mi. near Bristow, Creek Co.; CA. $119,179, est. $110,267, b. conc. on crushed rock paving 0.412 mi. at Bristow, Creek Co.;

Layman & Sons, Riverside Dr., Tulsa, Okla., CA. $491,635, est. $483,192, b. conc. on crushed rock paving 4.532 mi. near Sapulpa, Creek Co. Grand total $3,007,391. Bids Oct. 30, awarded Oct. 31. CD 10/17.

Texas-New Mexico Pipe Line Co., 720 San Jacinto St., Houston, Own Forces. Approx. $525,000. 55 mi. 8 in. crude oil pipe line, Eunice, N. M., to Covington area, TEXAS-NEW MEXICO. CD 10/2.

MONTANA—State Hy. Comn., Capitol Bldg., Helena, **Hilda Constr. Co.,** Great Falls, Mont. CA $304,005. Grav., oil 4.896 mi. Roundup-Grassrange Rd., Fergus Co. Bids Oct. 25. CD 10/17.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Universal Constr. Co.,** Scarritt Bldg., Kansas City, Mo. LB $248,750. Rehabilitation of BUILDINGS incl. 4 new bldgs., addns. to 3 bldgs., Lake City Arsenal, Inv. 52-1, INDEPENDENCE, MO. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids Oct. 10.

C. Cristina Constr. Co., 5425 Columbia Ave., St. Louis 9, Mo. CA $398,370. 2 story, bsmnt., 109x131 ft. High SCHOOL addn., alterations, PATTONVILLE, MO. School Dist. of Pattonville, Bd. Educ., Archie Null, secy, Pattonville, Mo. Bids Oct. 26. CD 10/19.

Evans Electric Constr. Co., 1617 Cuming St., Omaha, Neb. LB $189,824. Electric SUB-STATION, near BEEMER, NEB. Loup River Public Power Dist., Columbus, Neb. P. E. Hampton, c/o owner, ch. engr.

Foster Wheeler Co., 1004 Baltimore St., Kansas City 6, Mo. CA $231,065. 40,000 sq. ft. condenser for Kaw River POWER PLANT, 20 and Kansas Ave., KANSAS CITY, KAN. Bd P. Utilities, c/o Girard B. Little, secy., City Hall, Kansas City, Kan. CD 9/26, under LB.

E. B. Bush Constr. Co., 3500 W. Reno St., Oklahoma City 4, Okla., CA $973,576, est. $912,400. Electronics Testing LABORATORY, TULSA, OKLA. Douglas Aircraft Co., 3000 Ocean Park Blvd., Santa Monica, Calif. Bids Oct. 5, awarded Oct. 17. CD 10/19, under LB.

Munday-Cooper Co., Amarillo, Tex., Owner builds. Approx. $560,000. 70 DWELLINGS, AMARILLO, TEX. CD 10/5.

Harold P. Hill & Wm. H. Williams, 1534 Woodcrest St., Houston, Tex. Owner Builds. Approx. $535,000. 30 DWELLINGS, HOUSTON, TEX. CD 10/10.

Schneider Constr. Co., Inc., box 13157, Houston, Tex. CA. $705,338, James Stephen Hogg Elementary and Sam Houston Elementary SCHOOLS, PORT ARTHUR, TEX. Port Arthur Independent School Dist., Port Arthur, Tex. Bids Oct. 23, awarded Oct. 29. CD 10/29, under LB.

† **T. C. Bateson Co.,** Irwin-Keasler Bldg., Dallas, Tex., CA. $623,970. addnl. FACILITIES, Area 1, Lone Star Ordnance Plant, Inv. No. ENG 34-066-52-9, TEXARKANA, TEX. U. S. Eng., Box 61, Tulsa 2, Okla., Bids Oct. 16, awarded Oct. 23. CD 10/23, under LB.

▲ **Harsh Investment Co.,** (Sponsor), 374 S. W. Morrison St., Portland, Ore. CA $3,286,000. construct, manage, finance 400 HOUSES, Great Falls Air Force Base, No. 093-80002-Air-1, GREAT FALLS, MONT. U. S. Eng., 602, City-County Airport, Walla Walla, Wash. Sponsor awarded 250 DWELLING UNITS, to L. T. Baray, Helena, Mont. CD 9/11, under LB.

Maxey & Leftwich, 8811 E. Susan St., Albuquerque, N. M. LB. $818,500, est. $750,000. 3 story, bsmnt., L-shaped, 66x123 ft. and 53x132 ft. concrete, concrete block and stucco GEOLOGY BLDG., ALBUQUERQUE, N. M. University of New Mexico, c/o Bd. Regents, Albuquerque, N. M. Bids Oct. 26. CD 10/17.

Robert E. McKee, Box 1706, Santa Fe, N. M., LB. $585,200. CAPITOL BLDG. and remodeling ANNEX NO. 1, SANTA FE, N. M. State of New Mexico, Santa Fe, N. M. CD 10/31.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Arizona and Nevada**—CAPACITOR EQUIPMENT, etc. —B.A. 11/27—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Tucson, Ariz., capacitor equipment, circuit breaker, disconnecting switches, lightning arresters, for Tucson sub-station, Davis Dam Proj., Spec. DS 3571. L. N. McClellan, ch. engr.

† **California**—SELECTOR SWITCH—B.A. 11/27—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal

(Continued on page 77)

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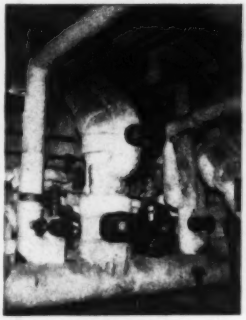
50 miles of *permanent piping* in world's tallest building

● In construction of the Empire State Building, designers wanted to eliminate piping maintenance.

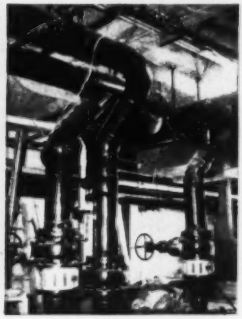
That's why a welded piping system, using TUBE-TURN Welding Fittings, was specified for all critical lines, employed for heating, refrigeration and other services. The original, and additional piping since added, continues to give leakproof permanence.

That's mighty important when you consider that the structure has 50 miles of piping, which last year delivered 72,000,000 pounds of steam, in addition to other services. Moreover, the system has conserved space, and provided optimum flow conditions.

Workmen applies finishing touches to insulation on new 12" chill water lines. Note ease of applying insulation on TUBE-TURN Welding Elbows. With no flanges to work around, piping can be much more compact.



Steam header fabricated with TUBE-TURN Welding Fittings feeds 8", 10", and 14" lines with steam at 150 psi. From central heating plant, steam flows to steam stations for distribution to different areas.



New water cooling plant will supply tenants with modern air conditioning facilities. Here, use of TUBE-TURN Welding Elbows and Welding Reducers simplifies piping to refrigeration machinery, and assures a leakproof system. Plant will eventually develop 3500 tons of refrigeration.

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(Continued from page 74)

Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Coram, selector switch for Shasta Switchyard, Central Valley Proj., Spec. DS3572. L. N. McClellan, ch. engr.

Calif., San Lorenzo—B.A. 11/27—Oro Loma Sanitary Dist., 15099 Hesperian Blvd., sewage pumping station. L. Cedric Macabee, 156 University Ave., Palo Alto, engr.

† **Idaho**—SWITCH, etc.—B.A. 11/27—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Mountain Home, Idaho, switch and cubicle for Anderson Ranch Power Plant, Boise Proj., Spec. DS3575. L. N. McClellan, ch. engr.

† **Oregon**—CABLE—B.A. 11/27—U. S. Eng., Pittock Block, Portland, 16,000 lin. ft. telephone supervisory cable, 18,000 lin. ft. spinning wire, Detroit Dam, Marion Co., CIVENG 35-026-52-109.

Ore., Portland—B.A. 11/29—City, City Hall, reconstruct Ankeny Sewage Pumping station. Plans deposit $25. L. G. Apperson, city engr. CD 7/20/45.

† **Washington**—TRANSFORMER—B.A. 11/29 — Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Ellopia, transformers for Ringgold Pumping Plant, Columbia Basin Proj., Spec. DS 3577. L. N. McClellan, ch. engr.

† **Washington**—B.A. 11/29—Bureau Reclamation, Dpt. Interior, Ephrata, constr. Scootenay Pumping Plants and laterals, Area P-2, Columbia Basin Proj, approx. 16 mi. south of Othello, Spec. DC-3583.

† **Oregon**—CABLE TRAYS—B.A. 11/30—U. S. Eng., Pittock Block, Portland, metal cable trays for Detroit Dam Power House, CIVENG 35-026-52-113.

† **Wash., Tacoma**—TRANSMITTER BLDG.—B.A. 11/30—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., transmitter bldg. for UHF radio air-ground facility at McChord Air Force Base, ENG 45-1108-52-99. CD 7/27.

BIDS ASKED—BUILDINGS

▲ **Calif., Los Angeles**—HOUSING—B.A. 11/27—Housing Authority of City of Los Angeles, 1401 E. First St., low rent housing, Project CA1 4-21, 601 dwelling units, $1,000,000. Albert Criz, 2523 W. 7 St., archt. CD 9/18/50.

Calif., San Gabriel—SCHOOL—B.A. 11/27—San Gabriel School Dist., 301 S. San Gabriel Blvd., Jefferson School (formerly Newby School) $480,839. Kistner, Curtis & Wright, 816 W. 5 St., Los Angeles, Calif., archts. CD 10/5/50.

Calif., Westley—SCHOOL—B.A. 11/27—Grayson Elementary School Dist., Westley, school. Mayo & Johnson, 307 Exchange Bldg., Stockton, archts.

† **Wash., Tacoma**—STORAGE—B.A. 11/27—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 22,700 sq. ft. addnl. mezzanine storage within Building 8182, Mt. Rainier Ordnance Depot. ENG 45-108-52-64. Extended date, CD 10/4.

† **Wash., Tacoma**—WAREHOUSE—B.A. 11/29—U. S. Eng. 4735 E. Marginal Way, Seattle, Zone 4, 200x 1200 ft. general supply warehouse at Mt. Rainier Ordnance Depot, ENG 45-108-52-57. Plans deposit $25. CD 7/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **E. E. Settergren**, Henry Bldg., Portland, Ore., CA $108,320, $107,630 alternate, control house and oil house at Valhalla sub-station, Inv. 6093, Chelan Co., WASHINGTON, Bonneville Power Admin., 826 N.E. Oregon St., Portland, Ore. Bids Oct. 29. CD 10/18.

† **Wm. C. Ulrich**, Coeur d' Alene, Idaho, LB, $217,680 Schedule 5;

M. A. Pithous, Vancouver, Wash., LB, $614,000, Schedule 4, clear right of way for Maywood-Columbia Section Columbia-Olympia 287 kv line, King, Kittitas, Chelan and Douglas Counties, Inv. 6076, WASHINGTON, Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore. Bids Oct. 19. CD 10/9.

▲ **Anderson Bridge Constr. Co. & Roy T. Earley Co.**, 4130 S. Adams St., Tacoma, Wash., CA, $1,342,265, est. $1,000,000, rein.-con. structural steel bridge over Port Industrial Waterway, TACOMA, WASH. City, City Hall, Tacoma, Wash. Bids Oct. 10. CD 10/16, under LB.

Harold Kaeser, 3213 Hunter Blvd., Seattle, Wash., CA $74,813, drainage project, VANCOUVER, WASH. Clark Co., Court House, Vancouver, Wash. Ray B. Woolf, Court House, Vancouver, Wash., engr. Awarded Oct. 22.

▲† **English Electric Co. Ltd.**, Stafford, England, LB $2,223,530, three 42,222 kva. generators for Lookout Point Dam, CIVENG 35-026-52-79, Lane Co., OREGON. U. S. Eng., Pittock Block, Portland, Ore.

† **Jerome Hydraulics Co.**, 60 Ocean Ave., Lynbrook, N. Y. LB. $165,300. hydraulic units for intake gates, McNary Dam powerhouse, CIVENG 45-164-52-28, OREGON. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids Oct. 30. CD 10/3.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

Ball & Simpson, 685 Delaware St., Berkeley, Calif., LB, $761,851, grading, etc. 8 mi. between 0.5 mi. south of Isabella and 3 mi. west of Weldon, Kern Co. Bids Oct. 24. CD 10/2.

† **Haddock**—Engineers Ltd., 1616 S. Greenwood St., Montebello, Calif., LB, $765,000, installing Randsburg wash test range, Increment 4 at station, NOY

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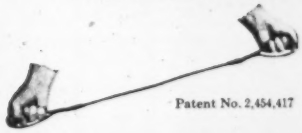

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70759, Spec. 32344, INYOKERN, CALIF. Constr. Officer, P. Wks. Bldg. 981 Naval Ordnance Test Station, Inyokern, Calif. Bids Oct. 23. CD 10/8.

† **Edward R. Siple Co.**, 2545 San Fernando Rd., Los Angeles, Calif., LB $338,000, Santa Rosa Island Instrument Station Facilities, Spec. 31514, POINT MUGU, CALIF. Dpt. Navy, Air Missile Test Station, Point Mugu, Calif. Bids Oct. 25.

▲† **A. B. C. Constr. Co.**, 12420 S. Bloomfield Ave., Norwalk, Calif., CA, $2,034,310, addnl. aviation fuel facilities, Spec. 30387, SAN PEDRO, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Sept. 13, awarded Oct. 18. CD 9/19, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Halper Constr. Co.**, 739 N. Highland Ave., Los Angeles, Calif., CA, $1,565,353, 1 story, 35,000 sq. ft., frame stucco HIGH SCHOOL, Huntington Pl and El Monte Ave., ARCADIA, CALIF. Arcadia Unified School Dist. 111 W. Duarte Rd., Arcadia, Calif. Bids Oct. 23, awarded Oct. 29. CD 10/4.

T. P. Schultz, 1115 E. Rosecrans St., Compton, Calif., CA $512,950, constr. Poplar St. Elementary SCHOOL COMPTON, CALIF. Compton City School Dist., 604 S. Tamarind St., Compton, Calif. Bids Sept. 24, awarded Oct. 25. CD 10/2, under LB.

Borden Co., 350 Madison Ave., New York, 17, N. Y., Separate Contracts. $600,000, Mfg. PLANT to produce resorcin a chemical used in adhesives, DOMINGUEZ, CALIF.

▲ **Hal B. Hayes Constr. Co.**, 1306 Satleoy St., Los Angeles, Calif., CA, $5,927,845, construct, manage and finance, 712-unit Military HOUSING, INYOKERN, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids July 24, awarded Oct. 25. CD 7/31, under LB.

† **Haas Constr. Co. & B. H. Tanner**, 274 Brannan St., San Francisco, Calif., LB, $604,800, Postgraduate SCHOOL U. S. Navy at Monterey, NOY 28908, Spec. 30523, MONTEREY, CALIF. P. Wks. Office, 12 Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids Oct. 24.

Sherman H. Johnson, 10329 E. Weaver St., El Monte, Calif., LB, $730,003, 43,000 sq. ft. frame, stucco Corvalis SCHOOL, NORWALK, CALIF. Norwalk School Dist., 12110 E. Walnut St., Norwalk, Calif. Bids Oct. 16.

E. Lundgren, Aberdeen, Wash., CA, $300,000, Grocery STORE, ABERDEEN, WASH. Safeway Stores, Inc., 1260 4 Ave. S., Seattle, Wash. CD 10/29.

School Dist., 146, Warden, Wash., rejected bids Sept. 24, 66x320 ft., and 48x60 ft. SCHOOL, WARDEN, WASH. CD 9/6.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Riviere Whalen (Cap des Rosiers)—HARBOR IMPRVS.—B.A. 11/21—Secy. Dpt. P. Wks., Hunter Bldg. Ottawa, Ont., harbour imprvs. Approx. $28,000. Plans deposit $25. R. Blais, c/o owner, engr.

B. C., Saanich—B.A. 11/26—Municipal Clerk, Municipal Hall, Royal Oak P.O., sanitary sewerage system Contr. 1, driving and paritally concrete lining 2 trunk sewer tunnels, the excavation for and erection 2 rein.-con. pumping stations, the installation rising main and other works. Plans deposit $25. H. D. Dawson, Royal Oak, engr. CD 3/28.

Ont., Toronto—B.A. 11/27—City, City Hall, 4,000 ft. 42 in. water mains from Coxwell to Jones Aves., along Dundas St. Extension, $100,000. L. B. Allan, comr. of works. CD 2/2/50.

BIDS ASKED—BUILDINGS

Ont., Deep River—HOUSING—B.A. 11/20—Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto, Ont., 100 housing units at Canadian Atomic Energy Site, $750,000. Plans deposit $50. R. P. Opie, c/o owner, regional engr.

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Ont., North Bay—HOUSING—B.A. 11/20—Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto, housing development, 60 single units, $450,000. Plans deposit $50. R. P. Ople, c/o owner, regional engr.

Ont., Petawawa—GARAGE, etc—B.A. 11/20—Defence Constr. (1951) Ltd., 441 Queen's Quay W., Toronto, one 40 vehicle garage and tank hangar prefabricated. Plans deposit $50. Approx. $125,000. R. P. Ople, c/o owner, regional engr.

Ont., Renfrew—HOUSING—B.A. 11/20—Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto, 50 housing units, $400,000. Plans deposit $50. R. P. Ople, c/o owner, regional engr. CD 10/26.

N. S., Cambridge—SCHOOL—B.A. 11/23—Dpt. P. Wks., Halifax, high school. $325,000. T. P. Rusby, ch. engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

BRITISH COLUMBIA—P. Wks., Parliament Bldg., Victoria.

Campbell-Bennett Ltd., 1718 W. 5 Ave., Vancouver, B. C., LB, $536,532 reconstr. 263 mi. Trans-Canada Hy., the Alexandra-Lodge-Tunnel Section, Bids Oct. 30.

Municipality, Own Forces, $154,485, c.conc. various locations and Corydon Ave., WINNIPEG, MAN, W. D. Hurst, City Hall, city engr. CD 4/14/48.

▲† **Fraser-Brace Eng. Co. Ltd.**, 360 St. James St. W., Montreal, Que., and **Terminal Constr. Co. Ltd.**, Dominion Square Bldg., Montreal, Que., CA. Approx. $2,000,000. runway constr. at Pepperell Air Base, near ST. JOHNS, NEWFOUNDLAND, U. S. Army Air Force, Northeast Command, Pepperell, Newfoundland, Awarded Oct. 29.

Holdcroft Constr. Co., Division St. N., Kingston Ont., CA, $100,000, water main loop at Canadian Army Camp BARRIEFIELD, ONT. Defence Constr. (1951) Ltd., 441 Queens Quay W., Toronto, Ont. Awarded Oct. 29.

A. W. Robertson Ltd., 57 Bloor St. W., Toronto, Ont., CA $175,000, seven prefabricated type steelox bldgs. at air base, CAMP BORDEN, ONT. Defense Constr. Ltd., 441 Queen's Quay West, Toronto, Ont. Awarded Oct. 29.

The Tatham Co. Ltd., Box 368, Belleville, Ont., CA Approx. $100,000, hangar lean-to at R.C.A.F. Station TRENTON, ONT Defence Constr Ltd., 441 Queen's Quay W., Toronto 2B, Ont. Oct. 2. CD 9/26.

Dick Constr. & Eng. Co., 65 Empire St., Welland, Ont. CA, $60,000, sewers in new sub-division, WELLAND, ONT. Municipality, Welland, Ont. C. L. Coulson, City Hall, Welland, Ont., city engr.

H. J. O'Connell Ltd., Canada Cement Bldg., Montreal, Que., CA, $131,987, asph. paving various streets;

Raymond McDonell & Co., Ltd., 2020 Union Ave., Montreal, Que., CA, Approx. $140,740, asph. paving various streets, MOUNT ROYAL, QUE., Town, Mount Royal, Que.

Newton Constr. Co., Ltd., 150 Victoria St., Sherbrooke, Que., CA, $740,000, 250-man BARRACK BLOCK, at R.C.A.F. Station, St. JOHNS, QUE. Defense Constr. Ltd., 1247 Guy St., Montreal, Que. Bids Sept. 25. CD 9/11.

BUILDINGS

LOW BIDS AND CONTRACTS

Diamond Constr. Co. Ltd., 60 Carleton St., Fredericton, N. B. CA, $351,500, DWELLINGS at Placentia, Gloverton, Ferryland Harbour Breton, and Whitbourne, NEWFOUNDLAND, Govt. of Canada, Dpt. Justice, Hunter Bldg., Ottawa, Ont.

T. R. Lafortune, Sudbury St., St. Johns, Newfoundland, Approx. $300,000, 60x300 ft., concrete block tannery with boiler house addn., 71 mi. from St. Johns, CARBONEAR, NEWFOUNDLAND, Wm Dpt. Economic Development, St. John's, Newfoundland, Wm. Dorn, c/o owner, engr.

Caswell Constr. Co. Ltd., 56 Rand St., Kirkland Lake, Ont., CA, $350,000 HOUSING DEVELOPMENT CORNWALL, ONT. C. V. Caswell, 56 Rand St., Kirkland Lake, Ont.

▲ **H. J. McFarland Constr. Co. Ltd.**, Talbot St., Picton, Ont., Approx. $2,000,000, BARRACK BLOCKS No. 1 (250-man) and No. 2 (180-man) and No. 1 Mess (500-man) Job. 1530 PICTON, Ont. Defence Constr. Ltd., 441 Queen's Quay W., Toronto 2B, Ont. Bids Sept. 25. CD 9/13.

Claydon Co. Ltd., 108 N. Syndicate Ave., Fort William, Ont., CA, Approx. $85,000, 40x60 ft., block, stucco PLANTS, PORT ARTHUR, ONT. Canadian Liquid Air Co. Ltd. 2259 Viau St., Montreal, Que.

Austin Co. Ltd., 2 King St. E., Toronto, Ont., CA $200,000, FACTORY Eglinton and Warden Aves., TORONTO, Ont. Link-Belt Ltd., 971 Eastern Ave., Toronto, Ont. CD 1/26. Awarded Oct. 29.

Finley W. McLachlan Ltd., 195 Fairbank Ave., Toronto, Ont., CA, $95,000, 1 story, 74x220 ft., 15,000 sq. ft. wood frame, concrete block WAREHOUSE, TORONTO, ONT. National Carbon Ltd., 805 Davenport Rd., Toronto, Ont. J. E. Hoare, Jr., 481 Eglinton Ave. W., Toronto, Ont. archt. Awarded Oct. 31. CD 9/5.

▲ **H. J. McFarland Constr. Co. Ltd.**, Talbot St., Picton, Ont., CA, $1,250,000, three BARRACK BLOCKS for 250,180 and 500 men at Canadian Army Camp, TRENTON, ONT. Defence Constr. (1951) Ltd., 441 Queen's Quay W., Ont. R. P. Ople, c/o owner, regional engr. Awarded Oct. 29.

Consolidated Paper Corp. Ltd., 1615 Sun Life Bldg., Montreal, Que., Day Labor, $500,000, PLANT at Laurentide Mill, GRAND 'MERE, QUE.

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Hill-Clark-Francis Ltd., 14 Ninth Ave., Norando, Que., CA. $400,000, 4 story, rein.-con., brick ORPHANAGE, ROUYN, QUE. Reverend Sisters of Notre Dame, Rouyn., Que., M. Girard, 55 Main St., Rouyn, Que., archt.

PROPOSED PROJECTS

WATER SUPPLY

Del., Laurel—City voted bonds water and sewer line extens., $100,000, Clarke, Gardner & Assoc., Salisbury, Md., consult. engrs. CD 3/4/48.

Ill., Streator—City, water plant, $556,700.

▲ **Mass., Holyoke**—City, Water Dpt., City Hall, reservoir and dam making borings, Southampton, $3,000,000, Tighe & Bond, 189 High St., consult. engrs.

▲ **Mich., Flint**—City, Harold M. Kinder, mgr., feeder mains, $1,600,000; elevated tanks, $350,000; electrification of water plant, $350,000; diesel standby power plant, $300,000, Ayers Lewis Norris & May, 300 Wolverine Bldg., Ann Arbor, consult. engrs. CD 4/10/47.

Tex., Edgewood—Town, Jake Wilder, mayor, water treatment plant, $85,000; water supply reservoir, $100,000; water transmission line to be piped into town, $90,000. Wisenbaker, Fix & Assoc., 1104½ S. Bois d 'Arc St., Tyler, Tex., consult. engrs.

Tex., Mount Enterprise—City, voted bonds, water distr. sys. $40,000; elevated steel water storage tank, drilling, developing deep water supply well, $60,000. CD 10/8.

Tex., Navasota—City, WW, $146,500. Julian Montgomery, Littlefield Bldg., Austin, consult. engr. CD 7/16.

Tex., Texarkana—City, Proj. 1, water supply, elevated steel storage tank and tower, $80,000; Proj. 2, c.i. waste lines and sys. rehabilitation, $35,000 for North Texarkana. Homer A. Hunter, 4707 Greenville Ave., Dallas, consult. engr.

▲ **Alaska, Ketchikan**—City, City Hall, voted bonds, exten. water sys. $1,000,000. CD 9/25.

SEWERS, WASTE DISPOSAL

Calif., Fairfield and Suisun—Cities of Fairfield and Suisun, sewage treatment plant and sewerage system, $477,000. Solano Engineers Inc., 50 Lincoln Hy., Vallejo, consult, engr. CD 10/15.

▲ **Calif., Richmond**—City, City Hall, Richmond-San Pablo Sewage Treatment Plant, System, etc., sewer system, $4,662,400 treatment plant, $2,380,000. Clyde C. Kennedy, 604 Mission St., San Francisco, consult. engr. CD 3/22.

▲ **Fla., St. Petersburg**—City, City Hall, defeated $6,000,000 bonds, to expand sewerage system. CD 11/22/44.

Idaho, Grangeville—City, City Hall, treatment plant $185,999.

▲ **Ill., Danville**—City, City Hall, defeated $1,600,000 bonds, storm sewerage system, ditch wid'n., sanitary sewer modification and exten. $3,000,000. Project indefinitely postponed, Warren & Van Praag, Inc., 253 South Park St., Decatur, consult. engr. CD 10/2.

▲ **Mo., Springfield**—City, sewer constr. $3,910,000. Russell & Axon, 408 Olive St., St. Louis, consult. engrs. CD 10/16.

Neb., Omaha—City, City Hall, 18 and Farnam Sts., city sewer survey for long distance planning. Henningson, Durham & Richardson, Standard Oil Bldg., consult. engrs. CD 4/9.

Tex., Texarkana—City, Proj. 3, sewage treatment plant, $75,000; Proj. 4, exten sanitary sewer lines, sys. rehabilitation, $75,000, for North Texarkana. Homer A. Hunter, 4707 Greenville Ave., Dallas, consult. engr.

Wis., Cameron—Village, sanitary sewerage sys. and sewage treatment plant, $235,000. Banister Eng. Co., 1547 University Ave., St. Paul, Minn., consult. engr. CD 1/2/47.

▲ **Alta., Edmonton**—City, Municipal Bldg., sewers and sewage disposal plant, $2,450,000. CD 11/8/43.

BRIDGES

Ill., Belleville—City, wid'n. 3 bridges over Richland Creek, $300,000.

▲ **La., Gretna**—City, Mayor and Alderman Gretna, bond election Nov. 27, bridge across Mississippi River within 2 mi. of here. $45,000,000.

▲ **MAINE—State Hy. Dpt., State House, Augusta, Portland**—Fore River Bridge for hy. and railroad traffic, $7,000,000. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., consult. engrs. CD 2/2, under Me., Portland.

▲ **Mo., Kansas City**—Courts Clay Co., Liberty, and Jackson Co., Kansas City 6, Mo., Lydia Ave. Bridge across Missouri River, $12,000,000. Howard-Needles-Tammen & Bergendoff, 921 Walnut St., Kansas City 6, Mo., consult. engrs. CD 8/9.

Tex., Sweetwater—City, voted bonds, underpass under 11 railway tracks 8th downtown area $952,000. CD 10/17.

STREETS AND ROADS

La., Eunice—City, $350,000 bond election Nov. 27, street imprvs.

N. Y., Barrington—Town, 16.5 mi. roads, $117,500.

N. Y., Bath—Town, 32.85 mi. roads, $229,950.

N. Y., Benton—Town, 29.7 mi. roads, $186,300.

N. Y., Carlisle—Town, 19.8 mi. roads, $138,600.

N. Y., Caton—Town, 23.5 mi. roads, $119,100.

N. Y., Cobleskill—Town, 10.5 mi. roads, $106,000.

N. Y., Cohocton—Town, 38.45 mi. roads, $196,300.

N. Y., Conesville—Town, 20 mi. roads, $140,000.

N. Y., Corning—Town, 26.5 mi. roads, $173,000.

N. Y., Darsville—Town, 26.3 mi. roads, $131,500.

N. Y., Dix—Town, 20 mi. roads, $140,000.

N. Y., Greenwood—Town, 14.8 mi. roads, $103,600.

N. Y., Hector—Town, 59.5 mi. roads, $416,500.

N. Y., Hornellsville—Town, 15.3 mi. roads, $106,325.

N. Y., Howard—Town, 29.6 mi. roads, $133,200.

N. Y., Hume—Town, 17.4 mi. roads, $121,800.

N. Y., Jasper—Town, 28.7 mi. roads, $200,900.

N. Y., Jerusalem—Town, 39.4 mi. roads, $291,200.

N. Y., Lindley—Town, 21.75 mi. roads, $131,000.

N. Y., Middleburg—Town, 23.3 mi. roads, $154,100.

N. Y., Middlesex—Town, 20.01 mi. roads, $140,050.

N. Y., Milo—Town, 28.65 mi. roads, $200,550.

N. Y., New Hudson—Town, 22.05 mi. roads, $154,350.

N. Y., Orange—Town, 18.75 mi. roads, $131,250.

N. Y., Potter—Town, 20 mi. roads, $140,000.

N. Y., Pulteney—Town, 29.6 mi. roads, $207,200.

N. Y., Rathbone—Town, 19.5 mi. roads, $136,500.

N. Y., Reading—Town, 19.6 mi. roads, $137,200.

N. Y., Rushford—Town, 26.86 mi. roads, $188,000.

N. Y., Sharon—Town, 23.8 mi. roads, $180,400.

N. Y., Starkey—Town, 19.85 mi. roads, $139,100.

N. Y., Thurston—Town, 20.5 mi. roads, $127,000.

N. Y., Tuscarora—Town, 26.7 mi. roads, $120,150.

N. Y., Tyrone—Town, 20.7 mi. roads, $144,900.

N. Y., Urbana—Town, 33.5 mi. roads, $145,000.

N. Y., Ward—Town, 16.35 mi. roads, $114,450.

N. Y., Wayland—Town, 40 mi. roads, $280,000.

N. Y., Wellsville—Town, 16.4 mi. roads, $114,800.

N. Y., Willing—Town, 22.35 mi. roads, $156,450.

OHIO—State Hy. Dpt., Columbus, O. and Ashtahula Co., Ashtabula,

Ashtabula Co.—Lakeland Expressway a direct route for Route 20 traffic through Ashtabula City. Baker Engineers, Rochester, Pa. consult. engrs. CD 11/24/43.

▲ **Tex., Alice**—Jim Wells Co., Court House, Alice, addnl. farm to market road imprvs., repairing and flood prevention, Precinct 1 $450,000; Precinct 2, $125,000; Precinct 3, $125,000; Precinct 4, $300,000. W. W. Coym, Alice, consult. engr. CD 6/16/47.

EARTHWORK, WATERWAYS

▲ **California—Oakdale and South San Joaquin Irrigation** Districts, P. O. Box 71, Manteca, bond election April or May 1952, constr. Donnels, Beardsley and Tullock Dams, tunnels, etc. for irrigation purposes, near Oakdale, $40,000,000. R. E. Hartley, P. O. Box 487, Oakdale, engr. for Oakdale Irrigation Dist.

AIRPORTS

▲† **Me., Brunswick**—AIRPORT FACILITIES—First Naval Dist., 495 Summer St., Boston, Mass., master jet -field, $2,991,000; barracks and mess facilities for 1,500 men, $4,810,000; control tower and operations, $440,000; utilities and sewer, $500,000; jet fuel storage, $275,000; enlisted men's club, $162,000; B O Q and mess facilities, $350,000; M E M G (5), $82,000; M O Q (5), $99,000, at Naval Air Station, Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., consult. engrs. CD 9/13.

▲† **Me., Limestone**—BUILDINGS—U. S. Eng., 857 Commonwealth Ave., Boston, plans by Alonzo J. Harriman, Inc., 292 Court St., Auburn, addnl. buildings, utilities, hangars, family housing units, laundry, chapel, etc. Limestone Air Force Base, $16,000,000; plans by John Howard & John Calvin Stevens, 187 Middle St., Portland, gymnasium at airfield, Limestone Air Force Base, $200,000. CD 9/13.

▲† **Me., Portland**—FUEL FACILITY—First Naval Dist., 495 Summer St., Boston, Mass., aviation gasoline and jet fuel bulk storage, $3,520,000; aviation gasoline and jet fuel bulk storage, $1,166,000, Casco Bay Fuel Facility, Thomas Worcester, Inc., 85 State St., Boston, Mass., consult. engr.

▲† **Me., Sanford**—AVIATION FACILITIES—First Naval Dist., 495 Summer St., Boston, Mass., auxiliary aviation facilities, $1,989,800; fuel storage and distr., $165,000; Control Tower—L S, $82,500, at Naval Auxiliary Air Station. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., consult. engrs.

▲† **Md., Andrews Air Force Base**—HOSPITAL, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash. D. C., plans by Ronald S. Sensman, 327 Carroll St. N. W., Takoma Park, hospital and dental clinic bldgs., $3,800,000; plans by Ross & Walton, 3510 R. I. Ave., Mt. Rainer, masonry barracks and bachelor officer quarters, $4,250,000. CD 10/3.

▲† **Mass., Bedford**—LABORATORIES—U. S. Eng., 857 Commonwealth Ave., Boston, plans by Coolidge Shepley Bulfinch & Abbott, 1 Court St., Boston, research laboratory and geophysics laboratory on 100 acres, adjacent to Hanscom Airport. $1,000,000. Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge, operators.

▲† **Mass., Charlestown**—BULK STORAGE—Dist. P. Wks., First Naval Dist., 495 Summer St., Boston, aviation gasoline and jet fuel bulk storage, Naval Fuel Facility, $2,766,000. J. C. Higgins Co., 236 Huntington Ave., Boston, consult. engr.

▲† **R. I., Quonset Point**—AIR STATION BUILDINGS, etc.—Pub. Wks. Office, 495 Summer St., Boston, Mass., 300,000 sq. ft. covered storage, $2,200,000; aircraft overhaul and repair facilities, $762,500; engine storage bldg., $880,000; Bldg. 16 exten., $550,000; Bldg. 17 exten., $330,000; refrigeration storage addn., $275,000; supply depot office, $220,000; electric sys. imprvs., $71,000, Naval Air Station Supply Depot. Charles A. Maguire & Assoc., 1015 Turks Bldg., Providence, consult. engrs. CD 9/13

▲† **Tex., Fort Worth**—AIR BASE IMPRVS.—U. S. Eng., 1127 Texas and Pacific Bldg., 3,300 ft. 16 in. rein.-con. runway extens. for B-36s, $2,750,000; shop, $750,000; 4 to 5-floor 500-bed hospital, $6,112,000; hangar, $3,500,000, Carswell Air Force Base.

▲† **Tex., Galveston**—RUNWAY—U. S. Eng., 606 Santa Fe Bldg., runway constr. for jet planes at Municipla Airport, $4,000,000. Atkinson & Atkinson, and Parkhill, Smith & Cooper, Lubbock, consult. engrs.

▲† **Wash., Spokane**—BARRACKS, etc.—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, 3 story, masonry barracks, $6,000,000; 150-bed hospital, $2,373,000; hangar, $3,729,000; shops for maintenance of equipment, $990,000; airmen's club, $50,000; 3 aircraft wash racks, $108,000; plans by Bishop, Wulff, Ritter & Gessell, W. 1023 Riverside St., warehouse, $840,000; bldg. for classified materials, $36,000; plans by Young & Richardson, Carleton & Detlie Central Bldg., Seattle, Zone 4, 85 ft. control tower, $480,000; plans expansion of utilities, incl. laying communications lines, $1,555,000; addnl. runways "stubs" and appendages, $1,560,000; fueling facilities, $1,200,000; radio transmitter and receiver, $108,000; high-frequency radio facilities, $23,000, all at Fairchild Air Force Base. CD 9/18.

† **Wash., Spokane**—REFUELING SYSTEMS, etc.—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, refueling system, $360,000; residences, $60,000; taxiway lighting, $50,000; security fencing, $50,000; and aircraft wash racks, $14,000; plans by K. Brooks, Fermwell Bldg., chapel, $63,000, all foregoing at Geiger Air Force Base. CD 9/18.

LATIN AMERICA

Mexico—Hidalgo Govt., Palacio del Estado, Pachuca, Hgo. plans 10 mi. road, Las Minas-Kilometer 154. $250,000.

Mexico, Mexico City—Fabrica Auto-Mex, Lago Alberto 220, plans automotive vehicle repair factory. $172,000.

▲ **Mexico, Nuevo Leon**—Telefonos de Mexico, P. de la Reforma, 107, Mexico City, plans dial telephone service bldgs. $1,500,000. Hugo Beckman, c/o owner, engr.

Mexico, Oaxaca City and Isthmus of Tehuantepec—Oaxaca Govt. Ing. Manuel Moyoral Heredia, Govt. Palacio del Estado, Oaxaca City, plans 5 tourist hotels, 2 in Oaxaca City, 3 on Isthmus of Tehuantepec, $600,000.

Mexico, Villahermosa—State Govt., Palacio del Estado, Villahermosa, plans WW and sewerage, $635,000. Luis Murillo & Hermilo Lopez Sanchez, c/o Tabasco State Govt., Palacio del Estado, Villahermosa, consult. engrs.

Mexico, Xicotencatl—Ingenio Xicotencatl, Ing. Hector Saenz, mgr., plans newsprint factory. $500,000.

PUBLIC BUILDINGS

▲ **Ala., Foley**—NAVAL BASE—Dist. P. Wks., Box 365, Naval Base, S. C., plans by Frank J. Sindelar, 1224 E. Strong St., Pensacola, Fla., rehabilitation Naval Base. $1,250,000.

Calif., San Mateo—SCHOOL—San Mateo Union High School Dist., Bellevue Ave. and Delaware Sts., plans by John Lyon Reid, 109 Stevenson St., San Francisco, Hillsdale High School on 34-acre site between 31 and 36 Aves. near Alameda de las Pulgas, Hillsdale, $500,000. CD 6/24/48.

Calif., Sonoma—SCHOOL—Sonoma Valley Union High School Dist., Sonoma, voted bonds, Sonoma Valley Union High School addns. $525,000. John Lyon Reid, 109 Stevenson St., San Francisco, archt. CD 10/8.

Del., Seaford—SCHOOL—Seaford Special School Dist., Seaford, voted bonds, school addns, alterations and new West Seaford Elementary School, $754,078. E. Wm. Martin, 803 West St., Wilmington, archts. CD 4/28/50.

▲† **D. C., Wash.**—SECURITY CENTER—U. S. Eng., First and Douglas St. N.W., Zone 25, Army Security Center. $5,000,000. Wigton-Abbott Corp., 1225 South Ave., Plainfield, N. J., engrs. (Location not selected).

(Continued on page 82)

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STANDARD OIL COMPANY STANDARD *(Indiana)*

(Continued from page 80)

▲ **Ga., Macon**—HOSPITAL—City, plans by Associated Hospital Architects, Inc., c/o Dennis & Dennis, Bankers Insurance Bldg., Macon Hospital addn. $2,500,000. CD 7/31/46.

Idaho, Pocatello—SCHOOL—School Bd., Pocatello Junior High School at Alameda, $825,000. CD 3/24/50.

Ill., East St. Louis—SCHOOL—School Dist. 181, Howard B. Black, supt., Signal Hill, East St. Louis, plans by Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, 1, Mo., school Signal Hill. $508,000. CD 4/20.

▲ **Ill., Riverside**—SCHOOL—Brookfield and Riverside Villages, Riverside, plans by Schmidt Garden & Erikson, 104 S. Michigan Ave., Chicago, Zone 3, high school addn., $1,000,000.

Ind., Gary—SCHOOL, etc.—School City of Gary, 524 Douglas St., plans by Perkins & Will, 309 Jackson Blvd., Chicago, 6, Ill., and Beine, Hall & Curran, 607 Broadway, Gary, Ind., assoc. archts., 2 story Edison School addn. and gymnasium. $600,000. CD 11/26/47.

Ia., Sigourney—HOSPITAL—Keokuk Co., Sigourney, plans by Morgan-Gelatt & Assocs., Burlington, hospital. $600,000. CD 8/29.

Kan., Kansas City—NEURO-PSYCHIATRY—State, Bd. Regents, State House, Topeka, plans by Chas. Marshall, c/o owner, state archt., neuro-psychiatry bldg., $481,-860; medical continuation bldg., $400,000.

Kan., McPherson—SCHOOL—Bd. Educ., School Dist. 20, Evaleight Kenney, clk., voted $600,000 bonds Oct. 23, school imprvs., addns., incl. Intermediate School, $340,000; Lincoln and Roosevelt addns., $90,000 each, Washington School addn., $80,000. Schmidt, McVay & Peddite, 1832 E. 2 St., Wichita, archts. CD 10/2.

Kan., Olathe—SCHOOL—Mission Twp., School Dist., c/o Harold C. Dent, supt., Prairie Village, Olathe, voted $600,000 bonds, grade school and expansion of 2 schools.

▲† **Md., Aberdeen Proving Ground**—LABORATORY—U. S. Eng., 24 St. and Maryland Ave., Baltimore, Zone 18, plans by Ralph M. Parsons Co., 617 S. Olive St., Los Angeles, Calif., laboratory and extension to ballistics research laboratory. $1,900,000. CD 10/1.

▲ **Mass., Waltham**—HOSPITAL—State, Dpt. Mental Health, 15 Ashburton Pl., Boston, plans by Gordon Robb, 551 Boylston St., Boston, hospital for psychotic children, Proj. M-201. $1,000,000. Thompson & Lichtner, Inc., Brookline, struct. engrs. Leo J. Crowley, 1250 Tremont St., Boston, htg. and vent. engr., Massachusetts Electrical Constr. Co., Inc., 25 Irvington St., Boston, elect. engr.

† **Mass., Woods Hole**—RESEARCH LABORATORY—Dist. Wks. Office, 495 Summer St., Boston, plans by E. Gunnar Peterson, Oyster Pond Rd., Falmouth, oceanographic research laboratory. $792,000.

▲ **Miss., Yazoo City**—POWER PLANT—City, power plant addn. $1,700,000. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., consult. engr.

▲ **Mo., St. Louis**—ART MUSEUM—City, c/o Director Perry T. Rathbone, City Art Museum, Forest Park, new wing to present art museum, Est. $1,500,000; 600 seat auditorium for Art Museum, $450,000-$540,000. CD 8/14/44.

▲† **N. H., Portsmouth**—LABORATORY—First Naval Dist., 495 Summer St., Boston, Mass., plans by Anderson & Beckwith, 11 Beacon St., Boston, Mass., electric test laboratory, Naval Shipyard, $2,079,000.

N. M., Santa Fe—CAPITOL BLDG.—State of New Mexico, Santa Fe, plans by W. C. Kruger & Assoc., Box 308, Capitol Bldg. and Annex No. 1 remodeling, $625,000. CD 8/23/45.

▲ **N. Y., Dannemora**—CELL BLOCK—Bureau Contracts & Accounts, Alfred E. Smith State Office Bldg., Albany, prison cell block. $1,933,471.

▲ **N. Y., Elmira**—REFORMATORY—Dpt. P. Wks., Alfred E. Smith State Office Bldg., Albany reformatory bldg. $1,383,000. CD 3/3/44.

▲ **N. Y., Greene**—HIGH SCHOOL—Central School Dist. 1, Greene, Smithville, Coventry, plans by Carl W. Clark, 625 Jones St., Syracuse, Junior-Senior High School. $1,850,000. CD 1/13/49.

▲† **R. I., Davisville**—WAREHOUSE—Pub. Wks. Office, 495 Summer St., Boston, Mass., plans by W. Chester Browne & Assoc., 184 Boylston St., Boston, Mass., 200x600 ft. dehumidified warehouse, Naval Advance Base Depot. $1,670,000. CD 9/13.

† **R. I., Newport**—BRIG—Pub. Wks. Office, 495 Summer St., Boston, Mass., plans by Cull & Robinson, 811 Industrial Trust Bldg., Providence, fireproof brig, Naval Training Station. $412,000. CD 10/26.

Tex., Greggton—SCHOOL—Pine Tree Independent School Dist., c/o James Ogg, supt., Greggton, plans by Preston M. Geren, 905 N. P. Anderson Bldg., Fort Worth, 1 story masonry school, auditorium and cafeteria. $400,000.

▲ **Tex., Longview**—SCHOOLS—Longview Independent School Dist., Longview, plans by Wyatt C. Hedrick, 904 Forth Worth Ave., Dallas, elementary school, $550,000; grade school, $409,000; high school addn., $950,000. CD 8/21.

Tex., Palestine—SCHOOLS—Palestine Independent School Dist., Palestine, voted bonds, school, $300,000; high school addn., imprvs. $315,000. Theo. S. Maffett & O. L. Hazelwood, Palestine, archts. CD 10/23.

Tex., San Antonio—SCHOOL—San Antonio Independent School Dist., Matagorda and Lavaca Sts., plans by Phelps & DeWees & Simmons, 1506 Majestic Bldg., school, for Kelly Field Air Force Base, $400,000.

Wash., Concrete—SCHOOL—School Dist. 102, Concrete, Wash., high school, $607,362.

▲ **Wash., Seattle**—CLINIC and HOSPITAL—University of Washington, Seattle, Zone 5, plans by Naramore, Bain, Brady & Johnson, 904 7 Ave., and McClelland & Jones, Republic Bldg., SEATTLE, clinic and hospital, first unit of $13,000,000 teaching hospital, $2,100,000. CD 11/14/50.

W. Va., Huntington—MARKET—City, wholesale food market, $800,000.

Wis., Chilton—SCHOOL—Bd. Educ., Chilton, high school addn., $400,000-$450,000.

▲ **Wis., Milwaukee**—WAR MEMORIAL—Metropolitan Milwaukee War Memorial, Inc., 828 N. Broadway, plans by Saarinen, Swanson & Saarinen, W. Long Lake Rd., Bloomfield Hills, Mich. and M. W. Meyer & Assocs., 424 E. Wells St., Zone 2, assoc. archts. War Memorial, $5,000,000. CD 12/28/45.

Alaska, Anchorage—SCHOOL—Independent School Dist., Anchorage, plans by Manley & Mayer, Anchorage, grade school. $700,000. CD 10/23.

▲ **B. C., Vancouver**—SUB-STATION—B. C. Electirc Co. Ltd., 425 Carroll St., plans by Sharp, Thompson, Berwick & Pratt, 1553 Robson St., electric sub-station at West Vancouver, $3,000,000.

▲ **N. S., Halifax**—SCHOOL—Bd. School Comrs., 17 Brunswick St., plans by Downie, Baker & Ahern, CPR Bldg., high school, Windsor St. and Quinpool Rd., $1,600,000. CD 12/15/49.

Ont., Renfrew—HOUSES—Dpt. Defence Production, 70 Lyon St., Ottawa, 50 houses, Approx. $400,000. S. M. Connolly, c/o owner, engr. CD 3/28/45.

▲ **Ont., Sarnia**—HOSPITAL—Sarnia General Hospital Comn., E. W. Dill, secy., Sarnia, plans by Govan, Ferguson, Lindsay, Kaminaker, Maw, Langley & Keenleyside, 515 Jarvis St., Toronto, Zone 5, and Norman B. Forbes, 197 Christian St. N., 5 story, bsmnt., 48x225 ft., steel brick hospital addn., plus 2 story 90x101 ft. bldg. $1,750,000. H. H. Augus & Assoc., Ltd., 1615 Yonge St., Toronto, Ont., consult. engrs. CD 10/22.

Ont., Toronto—HOME FOR AGED—City, H. E. McCallum, mayor, City Hall, plans by Page & Steele, 772 St. Clair Ave. W., two 5 bldg. units, each 2 story, Home for the Aged, $940,000. CD 6/3/49.

Que., Outremont—SCHOOL—Protestant School Bd., Outremont, W. F. Powell, secy., plans by Luke & Little, 1515 Crescent St., Montreal, school, Darlington St. and Soissons Ave. Approx. $500,000.

COMMERCIAL BUILDINGS

Conn., Milford—HOSPITAL—Milford Hospital, Bridgeport Ave., plans by Douglas Orr, 211 Whitney Ave., New Haven, hospital, $400,000. CD 10/17.

▲ **Ill., Chicago**—HOSPITAL—Passavant Hospital 303 E. Superior St., Zone 11, hospital addn. $1,500,000.

▲ **Ind., Franklin**—HOME FOR AGED—Methodist Indiana Conference Bd. Hospital & Home, Dr. Dallas Browning, chn., 5014 N. Capitol Ave., Indianapolis, plans by Alden Merando, Bd. Trade Bldg., Indianapolis, 3 and 4 story Methodist Home for the Aged. $2,000,000.

Ky., Louisville—CHURCH—Holy Ghost Church, John W. Vance, pastor, 3345 Lexington Rd., church, Lexington Rd. and Cannon's Lane. $400,000.

Md., Catonsville—HOUSING—Jonathan Woodner Co., Ring Bldg., Wash., D. C., 1,300-unit 1 and 2 story, brick, cinder block housing, Ingleside Ave.

Md., Forest Glen—APARTMENT—Richard Stelzer, Derwood, plans by J. Enfield Engleburdt, 919 Pershing Dr., Silver Spring, nine 2 story, brick, concrete 165-unit cinder block apartment bldgs.

Mass., Boston—STORE—Gilchrist Co., 417 Washington St., plans by Barnes & Champney, 687 Boylston St., 9 story, 20x80 ft. store addn. $450,000-$500,000.

▲ **Mass., Brockton**—HOSPITAL—Goddard Memorial Hospital, 129 W. Elm St., plans by Christopher C. Crowell, 120 Atwood St., Newton, 3 story, bsmnt., 50x150 ft. brick, rein.-con. hospital, incl. 50x50 wing, $1,200,000; 4 story, bsmnt., 67x83 ft., brick, rein.-con. clinic, $350,000. CD 2/26/51.

▲ **Mass., Cambridge**—SUPERMARKET, etc.—B. & M. Realty Co., 6 Beacon St., Boston, plans by Herman L. Freer & Wm. E. Nast, 27 School St., Boston, supermarket and stores, Porter Square, Massachusetts Ave., White Elm and Davenpport Sts., $1,000-000.

▲ **Minn., St. Paul**—OFFICE-WAREHOUSE—Twin City Wholesale Grocery Co., C. O. Johnson, mgr., 2285 University Ave., 1 story, 180,000 sq. ft. office-warehouse, Como Ave. opposite State Fair Grounds, $1,-000,000.

Miss., Picayune—HOSPITAL—Crosby Foundation, c/o N. W. Overstreet & Assoc., archts., 201 N. Lamar St., Jackson, hospital, $800,000.

▲ **Mo., Kansas City**—RESIDENCES—H. B. C. Development Co., Sedalia, plans by Howard Sails, Sedalia, 163 duplexes northeast of Crestview addn., Campbell-Lydia, 45 and 46 Sts., north, $2,500,000.

Mo., Tarkio—DORMITORY, etc.—Tarkio College, Tarkio, rebuild Thompson Hall (men's dormitory) imprv., Brown Gymnasium, bldg. for coal storage, $650,-000. CD 3/1/46.

▲ **N. J., Lafayette**—SCHOOL, etc.—St. Anthony's Guild, Lafayette, N. J., school and dormitory, $2,020,390.

N. Y., Brooklyn—OFFICE—Owner, c/o Judd & Garfein, 655 Madison Ave., New York, Zone 21, plans by David G. Holober, c/o owner, altering 12 story office bldg., 227-53 Schermerhorn St. $950,000.

N. Y., New York—HOSPITAL—St. Clare's Hospital, 415 W. 51 St., Zone 19, plans by J. B. Baumann, c/o owner, 6 story, penthouse hospital addn. 411-413 W. 51 St. $800,000.

N. Y., Springfield—SCHOOL—Roman Catholic Church of St. Mary Magdalene, 136-30 219 St., plans by Thomas H. Irving, 261 Broadway, New York, Zone 7, parish school, 218 St. and 137 Ave. $400,000.

Tex., Kingsville—HOUSING—Housing & Home Finance Agency, Kingsville, 18 duplexes, $325,000; 40 dwellings, $320,000.

Utah, Salt Lake City—SHOPPING CENTER—William H. McIntyre Co., 68 S. Main St., plans by Clifford Evans, Zions Savings Bank Bldg., shopping center, 21st South and 11th East Sts. $500,000.

Wash., Seattle—HOUSING UNITS—M. Hendrickson, 2635 Warsaw St., 25 duplex housing units, 27 Ave. S and Warsaw St. $450,000.

▲ **Que., Granby**—MODEL VILLAGE—Owner, c/o City of Granby, H. Bolvin, mayor, model village within city limits, (rear of Mont Sacre-Coeur) Approx. $2,500,-000.

Que., Quebec City—HOTEL—Notre Dame de Bon Conseil, 203 St. Francois St., plans by J. Marchand, 87 Laurentides St. 6 story, 100-room hotel. $600,-000.

INDUSTRIAL BUILDINGS

▲ **Ark., Bauxite**—PLANT—Reynolds Metal Co., Bauxite, expand plant, $75,000,000.

Conn., New Haven—PLANT—Connecticut Gas Co., Freight St., mixing plant, incl. 2 bldgs and necessary piping from mixing coke oven gas and natural gas, Stiles St. south of Alabama St. United Engineers & Constructors, 1401 Arch St., Phila., Pa. consult. engrs.

Ill., Chicago—FACTORY—Templeton-Kenly Div. of American Brake Shoe Co., 109 N. Wabash Ave., Chicago, Ill., 80,000 sq. ft. factory, Broadview, $550,000.

▲ **Ill., Chicago**—WAREHOUSE—Marshall Field Enterprises Inc., 211 W. Wacker St., Zone 6, Ill., warehouse, $1,200,000.

▲ **Ill., Lockport**—REFINERY—The Texas Co., Chrysler Bldg., New York, 17, N. Y., petroleum refinery, $45,000,000.

▲ **Ind., East Chicago**—COLD STRIP MILL—Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, O., 56 ft. cold strip mill and heating furnace, $40,000,000. CD 10/2.

N. J., Linden—WAREHOUSE—Dulin Bldg. Corp., Linden, warehouse, $717,000.

▲ **Tex., Corpus Christi**—REFINERY—Sunray Oil Corp., c/o F. L. Martin, pres., Jones Bldg., plans being revised, catalytic cracking refinery unit, $10,000,-000. CD 10/3, under Bids Asked.

▲ **Tex., Sweetwater**—REFINERY—Gulf Oil Corp., Gulf Bldg., Houston, addnl. refinery expansion $2,500,000.

Tex., Waddell—REFINERY—Gulf Oil Corp., Gulf Bldg., Houston, 20-ton per day sulphur recovery refinery units. $750,000.

▲ **Va., Richmond**—PLANT—A. H. Robins Co., 1322 W. Broad St., mfg. plant. $1,000,000.

▲ **Wash., Seattle**—ENGINEERING—Boeing Airplane Co., 775 S. E. Marginal Way, Seattle, 5 story, 200x300 ft. engineering bldg. addn. $2,500,000.

▲ **W. Va., Albright**—PLANT—Freemont Coal Co., Morgantown, coal tipple and processing plant $4,000,-000.

▲ **Ont., Perth**—FACTORY—The Burroughs Machines Ltd., Windsor, factory, $2,000,000.

▲ **Que., Montreal**—PLANT—Rolls-Royce Montreal Ltd., Montreal Airport, Dorval, Que., plans by E. C. Miller 485 McGill St. E., plant, over $2,000,000. T. Pringle & Sons Ltd., 485 McGill St. E., engr.

UNCLASSIFIED

Colorado—RURAL DISTRIBUTION LINES—**Kit Carson** Electric Assn., Hugo, 633 mi. distr. lines, and completion of previously approved constr. rehabilitation of facilities of towns of Flagler and Kit Carson, Kit Carson Co. $410,000. C. B. Eng. Co., 25 S. Grove St., Denver, consult. engr. CD 9/8/48.

▲† **Mass., Charlestown**—BOILER HOUSE—First Naval Dist., 495 Summer St., Boston, raise roof boiler house, remove old bunkers, install bunkers greater capacity, $165,000; remove boiler fdn. install fdns., etc., $176,000; provide mechanical fly ash percipitator, $121,000, at Naval Shipyard, Charles T. Main, Inc., 80 Federal St., Boston, consult. engr.

▲† **Mass., Taunton**—RAIL HEAD FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston, emergency type rail head facilities at Camp Myles Standish, $4,181,000, Hayden, Harding & Buchanan, 31 St. James Ave., Boston, consult. engrs.

Texas—TELEPHONE POLE LINES—Taylor Telephone Co., Merkel, 1,038 mi. new telephone lines, rebuild present lines, Callahan, Jones, Nolan and Taylor Counties. $691,000. CD 9/14/48.

▲ **Alaska, Ketchikan**—POWER SYSTEM—City, City Hall, voted bonds, exten. power system, $1,000,000. CD 9/25.

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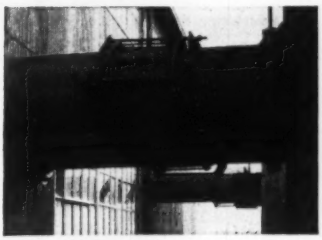

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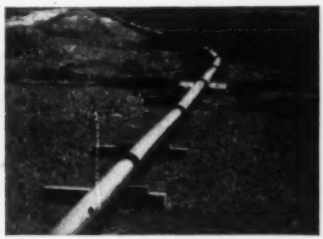

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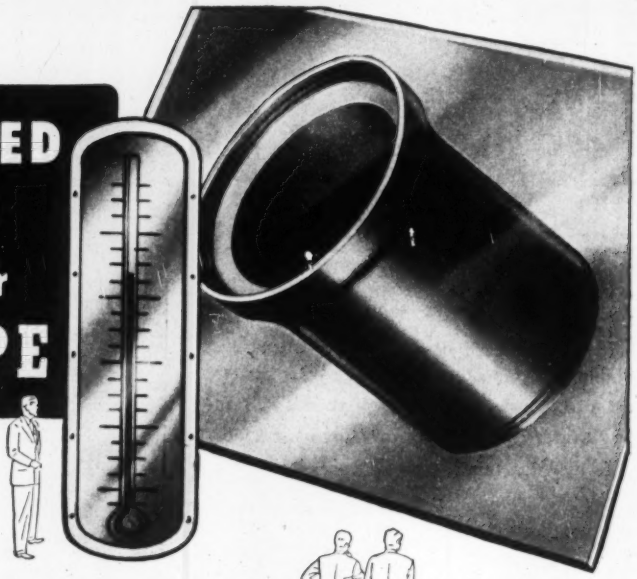

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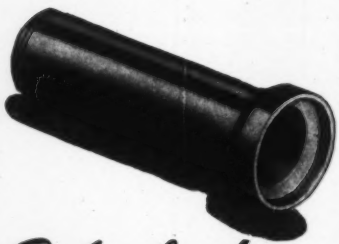

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CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ Conn., Watertown—SCHOOL—B.A. 11/20—Town, Watertown, Junior High School, $1,000,000. Plans deposit $50. CD 8/24/50.

BUILDINGS

LOW BIDS AND CONTRACTS

Frankini Constr. Co., Inc., 26 Mystic Ave., Medford, Mass. LB $623,600. HOUSING Proj. 200-2, ARLINGTON, MASS. Arlington Housing Auth., 2 Freemont Court, Arlington, Mass. Bids Nov. 1. CD 10/16.

International Concrete Constr. Corp., 25 Harrison Court, Lynn, Mass. CA $650,000 machine MANUFACTURING BLDG., Main St., WILMINGTON, MASS. J. W. Green, 119 Windsor St., Cambridge, Mass. G. F. Schreiber & J. L. Peterson, 2380 Atlantic Blvd., Los Angeles, Calif., engrs.

▲ **O. D. Purington Co., Inc.,** 171 Westminster St., Providence, R. I., LB. $1,432,000. HIGH SCHOOL, Hazard Property, SOUTH KINGSTOWN, R. I. Town, South Kingstown, R. I. Bids Oct. 30. CD 10/3.

▲ **Wadhams & May Co.,** 15 Lewis St., Hartford, Conn., LB, $1,208,783, Vocational Technical SCHOOL, Watertown Ave., B/A-R-83, WATERBURY, CONN. State P. Wks., Dpt., State Office Bldg., Hartford, Conn. Bids Oct. 31. CD 10/9.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

November 21 Pennsylvania

November 27 Maryland

STREETS AND ROADS

November 20 Maryland

November 21 Delaware

November 21 Pennsylvania

November 27 New Jersey

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Fleisher Engr. & Constr. Co.,** 936 Ellicott Square Bldg., Buffalo 3, N. Y., CA. $2,397,085, bidgs., utilities, Part II at Niagara Falls Air Force Base, NIAGARA FALLS, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Oct. 24. CD 9/27.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, Union Building & Constr. Corp., 631 Main Ave., Passaic, N. J., LB, $2,049,918, Sect. 4B of Route 25, grading, bridges and paving eastbound roadway from Charlottesburg to Smith Mills, West Milford Twp., Passaic Co. and Kinellon Boro, Morris Co. Bids Nov. 1. CD 10/16.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg,

L. G. DeFelice & Sons, Nettleton Ave., North Haven, Conn., LB. $3,985,948, est. $3,000,000, construct 43,745 ft. divided highway incl. 3 rein.-con. girder; 2 I-beam and one rein.-con. slab bridges, T. R. 51, from Darlington to Ohio State Line, Beaver Co.;

C. W. Good, Inc., 726 Columbia Ave., Lancaster, Pa., LB $3,158,738, est. $3,500,000, construct 35,615 ft. by-pass divided parkway type highway of rein.-con. pavement, incl. one plate girder and 7 I-beam bridges, TR 230, 30, Lancaster Co. Bids Nov. 2. CD 10/17.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

J. Paul Laubach, Box C, Benton, Pa., LB. $126,465, crushed aggregate base and bit. surf., 5.895 ft. T. R. 44; 339, Columbia Co.;

W. L. Dunn Constr. Co., Cochranton, Pa., LB. $66,543, crushed aggregate base and bit. surf., 1,173 ft. roadway, two I-beam bridges, L. R. 20042 (1B); 20021 (1B). Crawford Co.;

H. T. Osburn & Co., Inc., 631 12th St., Franklin, Pa., LB $824,999, rein.con. roadway 29,324 ft., and three bridges, T. R. 19; 6, Erie Co.;

The Baldwin Bros. Paving Co., 1690 Union Commerce Bldg., Cleveland 14, O., LB. $645,844, c. conc. pavement 21,593 ft. roadway 2 bridges, T. R. 99, Erie Co. Bids Nov. 2. CD 10/10.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg,

Latrobe Road Constr. Co., Latrobe, Pa., CA. $2,097,964, est $2,600,000, c. conc. paving 4.37 mi. roadway (divided) and bridges, east of Blairsville, Route 22, Indiana Co.;

Allegheny Asphalt & Paving Co., Bingham and 8 Sts., Pittsburgh, Pa., CA. $1,452,239, est. $1,900,000, c. conc. paving 7.07 mi. roadway between Moravia and Koppel as Turnpike Feeder, T. R 18, L. R. 77 (14), Lawrence and Beaver Counties. Bids Oct. 11, awarded Nov. 2, CD 10/17, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Midwood Estates Homes,** c/o Thomas S. Arcuri, archt. 86-24 Queens Blvd., Elmhurst, N. Y. Owner builds. Approx. $1,300,000. 112 HOUSES on tract at Old Britton and Bellmore Rds., BELLMORE, N. Y.

A. J. Courtmel Co., Inc., 44 E. 23 St., New York 10, N. Y. CA. Approx. $500,000. 16 story OFFICE bldg. alterations, 39-41 Park Row, NEW YORK, N. Y. Pace College, 255 Broadway, New York 7, N. Y. CD 7/12.

Hall-Meslin Co., Inc., 921 Bergen Ave., Jersey City, N. J. CA. $799,000 general contract, Asbury Park Village Housing Proj. N. J. 7-3, 123 units in two buildings, ASBURY PARK, N. J. Housing Auth. of Asbury Park, Washington Ave., Asbury Park, N. J. Bids Oct. 19. CD 10/15.

Reeves Senn Ltd., c/o Harvey J. E. Milkon, Broadway, Fairlawn, N. J. Owner Builds. $400,000, 35 HOUSES, to be called Fairhaven Homes, on Park Ave. MIDLAND PARK, N. J.

Frederick Constr. Co., 15 N. Court St., Frederick, Md. CA $600,500, est. $600,000. sixty 2 story, bsmnt., brick HOUSING units, between Broadway and Madison St., FREDERICK, MD. Frederick Housing Auth., Bentz and W. 6 St., Frederick, Md. CD 9/27/50.

▲ **Silver Rock Development Co.,** 8644 Colesville Rd., Silver Spring, Md. Owner Builds. $1,500,000, two hundred and fifty 1 story, 25x38 ft. brick RESIDENCES, Viers Mill Rd., ROCKVILLE, MD. Wm. K. Briley & Assoc., 1711 Connecticut Ave. N. W., Wash., D. C., archts.

SOUTH

BIDS ASKED—BUILDINGS

▲ **Ky.,** Richmond—HOUSING—B.A. 11/27—Richmond Municipal Housing Comn., 134 housing units, Proj. Ky 16-1, $1,400,000. Plans deposit $50, Meriwether Marye & Assoc., 236 E. Short St., Lexington, archts. CD 11/20/50.

Ga., Toccoa—HOUSING—B.A. 11/29—Toccoa Housing Auth., Toccoa, 88 housing units, $800,000. Plans deposit $35. Extended date. Bothwell & Nash, 206 Roswell St., Marietta, archts. CD 9/18.

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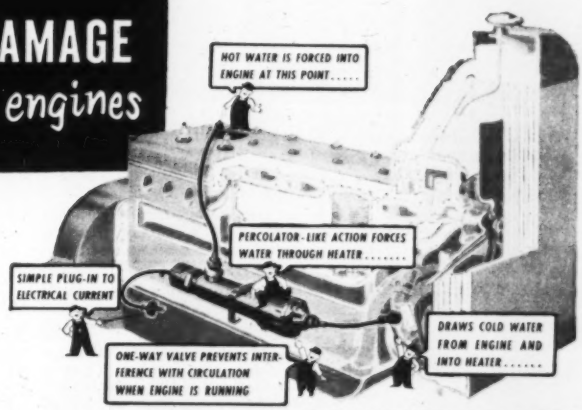
to your gas & diesel engines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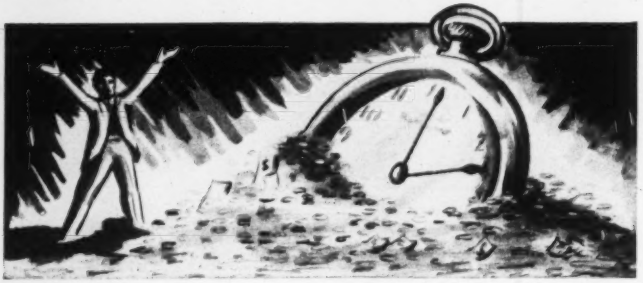

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▲ **Fla., Titusville**—HOUSING—B.A. 12/15—Brevard County Housing Auth., Titusville, 166 housing units, $1,500,000. Ralph H. Spicer, Daytona Beach, archt.

▲ † **Ky., Fort Campbell**—HOUSING—B.A. 12/19—U. S. Eng., 830 W. Broadway, Louisville, permanent troop housing, 77 buildings, (42 barrac.s) roads, drains, sewer lines, and supporting facilities, Eng. 15-029-52-7, $25,000,000. Plans deposit $100, Louis & Henry, Starks Bldg., Louisville, archts. CD 7/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **Wiley N. Jackson Co.**, R.F.D. 4, Roanoke, Va., CA, $2,143,855, relocation Hy. 58, east of Clarksville, Buggs Island Dam reservoir, Inv. 52-10, VIRGINIA. U. S. Eng., foot of Front St., Norfolk, Va. Bids Oct. 25. CD 11/5, under LB.

▲ † **Lang Constr. Co.**, Hampton, Va., CA, $1,244,000, telephone lines, addns. fire alarm system, pav.ng, water lines, etc. at Naval Amphibious Base, LITTLE CREEK, VA., Pub. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va.

▲ † **Carpenter Constr. Co.**, Bank of Commerce Bldg., Norfolk, Va., CA, $1,694,631, aviation gasoline distr. sys. addns. Crane Island Fuel Facility Naval Supply Center, NOY 28431, Spec. 30076, NORFOLK, VA. Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Oct. 16. CD 10/1.

▲ † **Pub. Wks. Office**, Fifth Naval Dist., Norfolk, Va., rejected bids Sept. 11, addnl. facilities, U. S. Naval Mine Depot, NOY 26917, YORKTOWN, VA. LB, $1,616,569. CD 9/27, under LB.

▲ **Wannamaker & Wells, Inc.**, Orangeburg, S. C. and **Cherokee Inc.**, Sumter Hy., Columbia, S. C., LB, $1,607,965, North Fork Water Supply Dam, ASHEVILLE, N. C. City, Asheville, N. C. Bids Nov. 1. CD 10/4.

† **Dickerson, Inc.**, Monroe, N. C., CA, $683,541, exten. East-West parking apron at Donaldson Air Force Base, No. 38-081-52-8, GREENVILLE, S. C. U. S. Eng., 33 Custom House, Charleston, S. C. Bids Oct. 29. CD 11/7, under LB.

C. Y. Thomason Co., Greenwood, S. C., LB, $648,446, W. imprvs., NORTH AUGUSTA, S. C. City, North Augusta, S. C. Bids Oct. 29. CD 10/3.

▲ **GEORGIA**—State Hy. Dpt., Atlanta. **Lohridge Brothers**, Gainesville, Ga., CA, $196,357, base and surf., 7.393 mi. Bowdon to Tallapoosa Rd., beginning 278 ft. south of Carroll Co. Line and ends at Linham St. in Tallapoosa, PR-1405 (1), Haralson and Carroll Counties; CA $164,675 base and surf. 6.189 mi. Bowdon to Tallapoosa Rd., beginning present pavement in Bowdon and extends toward Tallapoosa, S-692 (6), Carroll Co.;

W. L. Cobb Constr. Co., Decatur, Ga., CA, $142,654, base and surf. 10.848 mi. Calhoun to Spring Place Rd., beginning at Gordon Co. line and ends at present pavement in Spring Place, S-0824 (2), Murray Co.; CA, $104,476, base and surf. 6.207 mi. Rydal to Waleska Rd, beginning at end of present pavement approx. 1 mi. northwest of Waleska and ends approx. 1144 ft. east of Bartow Co. line, S-0828 (2), Cherokee Co.;

T. D. Lamb, Jr., Vidalia, Ga., CA, $118,729, base and surf. 5.018 mi. Lyons to Cobbtown Rd., beginning at end of present pavement near Ohoopee River Bridge and ends at State Route 23 in Cobbtown, S-1244 (1), Tattnall Co.;

E. H. Hines Constr. Co., Inc., Greenwood, S. C., CA, $125,936, base and surf. 9.68 mi. Woolsey to Lovejoy Rd., beginning at S. R. 92 in Woolsey and ends at S. R. in Lovejoy, PR 1367 (1), Fayatte, Clayton and Henry Counties;

Coffee Constr. Co., Eastman, Ga., CA, $73,990, surf. 3.92 mi. S. R. 26, beginning at SR 55 in Cusseta and extends east; also 6.13 mi. Post Rd., beginning at S. R. 26, 3.92 mi. east of Cusseta and ends at S. R. 103, approx. 6.4 mi. northwest of Buena Vista 1.58 mi. on SR. 1 in Cusseta, SAP 577 (4), R 1297 (2), SAP-577 (5), SAP-1826-B (2) and SAP-1849-B (2), Chatahoochee and Marion Counties;

J. G. Attaway Constr. Co., Statesboro, Ga., CA, $124,044 base and surf., bridge 5.443 mi. at Black Creek on Nevils to Broklet Rd., beginning at Nevils and ends at present pavement approx. 5 mi. south of Brooklet, S-0733 (2), Bulloch Co.;

E. A. Hudson's Sons, Bolton, Ga., CA, $193,309, base and surf. 3.93 mi. and 1 bridge on Barnesville to Jackson Rd., beginning in Barnesville and extends toward Jackson, S 0762 (4), Lamar Co.;

Mose Gordon Lumber Co., Commerce, Ga., CA, $104,216 base and surf. 5.763 mi. Braselton to Jefferson Rd., beginning east city limits of Braselton and extends toward Jefferson S-0910 (3), Jackson Co.;

Oxford Constr. Co., Albany, Ga., CA, $126,821, base and surf. 8.256 mi. Sasser to Brenwood Rd., beginning in Sasser and ends at S. R. 118 in Bronwood, S-1619 (1), Terrell Co.;

Wright Contg. Co., 504 25 Ave., Columbus, Ga., CA $766,428, wid'n., resurf. 6.469 mi. 2 new bridges and wid'n. one new bridge on Greenville to Talbotton Rd., beginning approx. 700 ft. north of north city limits of Warm Springs and ends at junction of State Route 41 and 85 south of Manchester, F 024-1 (2), Meriwether and Talbot Counties;

Caddell & Jackson, 2014 Denn's St., Jacksonville, Fla., CA, $182,556, base and surf. bridge 5.794 mi. at Ichawaynochaway Creek on Arlington to Newton Rd., beginning at Early Co. line and extends to end of present pavement approx. 4 mi. west of State Rt. 37, S 0511 (2), Baker Co.;

Crummey & Crummey, Rochelle, Ga., CA $81,415 base and surf. 4.721 mi. Fitzgerald to Rochelle Rd., beginning at end of present pavement approx. 4.6 mi. north of Fitzgerald and ends approx. 60 ft. north of Ben Hill-Wilcox Co. line, S $539 (3), Ben Hill and Wilcox Counties;

Ocmulgee Constr. Co., Inc., McRae, Ga., CA, **$83,064** base and surf. 4.054 mi. and one bridge on Willacoochee to Ocilla Rds., beginning at end of present pavement approx. 4 mi. southeast of Ocilla and extend toward Willacoochee, S-0550 (2), Irwin Co.;

George C. Blount & Son, Inc., 72 11 St. N.E., Atlanta, Ga., CA, **$72,950**, grading, paving 2.738 mi. Folkston to White Oak Rd., beginning at end of present pavement approx. 9.6 mi. southwest of State Rt. 25 and ends at Burnt Fort Bridge, SAP-1215-B (2), Camden Co.;

E. F. Groover, Moultrie, Ga., CA, **$73,202**, base and surf. 6.515 mi. Knoxville to Byron Rd., beginning and end of present pavement southeast of Knoxville and ends at Peach Co. line, SAP-1237-Q (1), Crawford Co. Grand total $2,734,822. Bids Oct. 26, awarded Oct. 31. CD 10/17.

▲† **Texas Constr. Co.**, P. O. Box 1384, Dallas, Tex. CA **$2,346,210.** Bayou Bouef Lock, Inv. 52-22, St. Mary Parish, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. CD 10/23, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Magnolia Terrace, Inc.**, c/o Nat W. Cabell 87 Broad St., Charleston, S. C., Owner Builds. A, rox. **$1,000,000.** RESIDENTIAL DEVELOPMENT, AIKEN, S. C.

▲ **Standard Constr. Co.**, 15 11 St., Columbus, Ga., CA, excavation and concrete work;

Virginia Bridge Co., Healy Bldg., Atlanta, Ga., CA, structural steel work for electric POWER PLANT HAMMOND on Coosa River, ROME, GA. Georgia Power Co., 75 Marietta St., N. W., Atlanta, Ga. Total est. **$20,000,000.** CD 7/25.

▲ **Mion Constr. Co.**, 377 Techwood Dr., Atlanta, Ga., CA. **$7,000,000,** 542 HOMES, SMYRNA, GA. Belmont Hills, Inc., c/o S. W. Peabody & J. C. Foster, 530 N. McDonough St. Decatur, Ga. CD 7/5.

George J. Collier, 718 N. W. 1 St., Fort Lauderdale, Fla. Owner Builds. **$750,000,** 80 HOMES addition to Riverside Estates, FORT LAUDERDALE, FLA.

▲ **Louis Kenin**, 1728 Alton Rd., Miami Beach, Fla., CA, Approx. **$1,000,000,** HOTEL, MIAMI BEACH, FLA. 2500 Collins Corp., c/o contractor.

▲ **Ford, Bacon & Davis Constr. Co.**, 805 S. Grand St., Monroe, La. CA **$20,000,000.** PLANT addn., STERLINGTON, LA. Commercial Solvents, c/o contractor. CD 8/11/50.

▲ **Tube Turns, Inc.**, 224 E. Broadway, Louisville, Ky. CA **$5,000,000.** design and construct Chemical PLANT, CALVERT CITY, KY. B. F. Goodrich Chemical Corp., Rose Bldg., Cleveland, O. CD 7/27.

▲ **Clark Constr. Co.**, Owensboro, Ky. CA **$1,276,350.** 134 HOUSING Units, HOPKINSVILLE, KY. Hopkinsville Housing Comn., Hopkinsville, Ky. Bids Oct. 31. CD 10/8.

Jacobson & Levitt, First Natl. Bank Bldg., Memphis, Tenn., Owner Builds. Approx. **$650,000.** 77 HOMES addn. to Princeton Park sub-division, MEMPHIS, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

November 27 Wisconsin

STREETS AND ROADS

November 27 Wisconsin

▲ **Mich., Bay City**—B.A. 11/20—City, E. A. Cederberg, mayor, City Hall, sewage treatment plant, incl. pumping station, detritor and comminutor structure, clarifiers, chlorination contact tank, filter bldg., office and garage, $2,000,000. Plans deposit $60, refundable. Francis Eng. Co., 303 Eddy Bldg., Saginaw, engr. Bids 10/4 rejected, LB $1,925,000. CD 10/25, under LB.

BIDS ASKED—BUILDINGS

▲ **Mich., Detroit**—HOUSING—B.A. 11/21—Detroit Housing Comn., 409 Griswold St., two hundred and thirty-four 2 story, brick housing units, Edward J.

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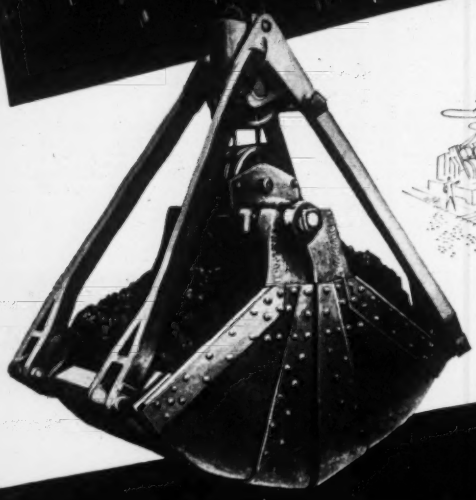

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CAR DUMPER

Jeffries Proj. $2,125,000. Harvey, Ellington & Day, 153 E. Elizabeth St., archts. CD 4/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Charles H. Shook, Inc.**, 582 W. 2 St., Dayton, O., CA. $792,981, sewage disposal plant;

W. L. Harper Co., 2910 E. Highland St., Cincinnati, O. CA. $954,047, sewer facilities for Beavercreek Sanitary Sewer Dist., DAYTON, O. Comrs., Montgomery Co. Court House, Dayton, Awarded Oct. 26. CD 10/31 and 10/9, under LB.

Indiana—State Hy. Comn., Indianapolis.

J. C. O'Connor & Sons, Inc., 2401 Miner St., Fort Wayne, Ind., CA, $791,359, est. $938,543, dual lane drainage, c. conc. 0.288 mi. Hammond, Lake Co. Bids Sept. 20, awarded Oct. 30. CD 9/25, under LB.

▲ **INDIANA**—State Hy. Comn., Indianapolis,

Rieth-Riley Constr. Co., 311 W. Monroe St., Goshen, Ind., CA, $1,017,102, est. $1,165,591, c. conc. paving dual lane 4.649 mi. U.S. 52, Montmorenci to west of Tippecanoe-Benton Co. Line, Contr. 3416, Tippecanoe and Benton Counties;

J. C. O'Connor & Sons, Inc., 2401 Miner St., Fort Wayne, Ind., CA, $525,763, est. $531,731, c. conc. base widn., and c. conc. resurf. 13.03 mi. State Rds. 55,8 and 53, Crown Point to U.S. Rd. 30 and Crown Point to Hebron b. conc. resurf. 1.941 mi. in Hobart, Porter and Lake Counties. Bids Oct. 16, awarded Oct. 30. CD 10/19, under LB.

John Dehner Constr. Co., 1206 Clark St., Fort Wayne, Ind., LB, $524,157, constr. about 2 mi. 42 in. raw water main with concrete pipe from St. Joe River Dam to City Filtration Plant, FORT WAYNE, IND. Bd. P. Wks., City Hall, Fort Wayne, Ind. Bids Oct. 30. CD 10/4.

▲ **Boyle, McHugh & Healey**, 6449 S. Park Ave., Chicago, Ill. CA $9,879,138. 7 sections relief and sanitary sewers in city;

Keeley Brothers Contg. Co., 4211 State St., East St. Louis, Ill. CA $1,521,585. Sect. 8, relief and sanitary sewers in Edgemont, Oak Park and Rush City sections, EAST ST. LOUIS, ILL. City, Alvin G. Field, mayor, East St. Louis, Ill. Awarded Nov. 5. CD 8/27, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

M. DeBartolo Constr. Co., 216 Alexander Ave., Youngstown, O., CA. Approx. $750,000. 80,000 sq. ft. SHOPPING CENTER, W. Market and S. Hawkins Sts., for approx. 15 stores, AKRON, O. Westgate Shopping Center, Inc., c/o E. J. DeBartolo, 80 Alburn St., Boardman, O.

▲ **University of Illinois**, 1716 W. Taylor St., Chicago, Ill. rejected bids Oct. 26, 6 story, brick, steel, concrete, 3,500,000 cu. ft. dentistry-medicine-pharmacy bldg., CHICAGO, ILL. LB $7,007,254. Est. $3,768,184. CD 9/26, under LB.

Lindquist Co., 210 Brinton Ave., Dixon, Ill., CA, $835,650. 1 and 2 story, U-shaped, 900,000 cu. ft. SCHOOL, DIXON, ILL. School Dist. 170, c/o High School Bldg., Dixon, Ill. Bids Oct. 30. CD 10/17.

▲ **Steinle-Wolfe, Inc.**, Fremont, O. CA $1,723,006. 160 brick HOUSING units, Frederick Douglass Apartments, Area 3, DETROIT, MICH. Detroit Housing Comn., 409 Griswald St., Detroit, Mich. Bids Oct. 24. CD 10/15.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

November 21, 27 Kansas

STREETS AND ROADS

November 21, 27 Kansas

† **N. M., Alamogordo**—DORMITORIES—8.A. About 1/14—U. S. Eng., Box 1538, 2134 E. Central Ave., Albuquerque, A M dormitories; approx. 125x153 ft., mess and administration bldg., approx. 7,500 sq. yd. double bit. asph. surf. tr.;; outside utilities, incl. aerial electrical work and underground steam line, (AS2-1A), Serial No. Eng 29-005-52-21, Holloman Air Force Base. CD 8/28.

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B. H. Mueller Co., 6625 Delmar Blvd., St. Louis 5, Mo.
Ole K. Olsen Co., 821 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

BIDS ASKED—BUILDINGS

Tex., Fort Worth—HIGH SCHOOL—B.A. 11/21—Castleberry School Dist., River Oaks Sect., c/o D. R. Marsh, Fort Worth Junior High School, $553,294. A. B. Withers, Insurance Bldg., archt. CD 5/9/51, under LB.

▲ Tex., Dallas—HOSPITAL—B.A. 1/10—City, City Hall, Main and Harwood Sts., and Dallas Co., Court House, 8 story bsmnt., 650-bed, masonry city-county hospital. $6,500,000. Plans deposit $200. Extended date. DeWitt & Swank, 2025 Cedar Springs Rd., archts. CD 9/19.

Tex., Dallas—SERVICE CENTER—Bids Asked—Lone Star Gas Co., 1915 Wood St., service center, incl. 54,000 sq. ft. warehouse, at Oak Cliff, $550,000. Gill, Harrell & Assoc., 1913 San Jacinto St., archts.

▲ Tex., Houston—REFINERY UNITS—Bids Asked—Pure Oil Co., 1st. Natl. Bank Bldg., catalytic cracking refinery unit, $10,000,000; desalting refinery unit, $12,500,000; gasoline components ingredients refinery unit for mfg. aviation gasoline, $2,000,000, near here. CD 10/25.

▲ Tex., Midland—PLANT—Bids Asked—Magnolia Petroleum Co. and Associated Companies, Magnolia Bldg., Dallas, new natural gasoline extraction plant. $3,500,000. CD 9/27.

SOON LETS CONTRACT—BUILDINGS

Okla., Lawton—BANK—Security Bank & Trust Co., Lawton, soon lets contract bank. $600,000. C. L. Monnot, 3013 Classen St., Oklahoma City, Zone 6, archts. CD 7/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Victory Constr. Co., 2240 Brentwood Blvd., St. Louis, Mo., and Paul Krummel, 7201 Weil St., St. Louis, Mo. LB $667,537. Outfall sewer, ST. LOUIS, MO. State, Jefferson City, Mo. Bids Nov. 2. CD 10/16.

† Claussen-Olson-Benner, Inc., Holdrege, Neb., CA. $774,088 est. $821,554, Schedule 5, construct earthwork, structures for Cambridge Canal, Station 1012 plus 52.0 to 1549 plus 51.5 and drains, channel changes, Missouri Missouri River Basin proj., Fenchman-Cambridge Div., Spec. DC-3554, NEBRASKA. Bureau Reclamation, Dpt. Interior, Arapahoe, Neb. Bids Oct. 18, awarded 11/2. CD 10/24, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

O. J. Eickhof & Sons, Crookston, Minn. CA $644,984. general contract, 3 story, 146x154 ft., T-shape HOSPITAL, CROOKSTON, MINN. Bethesda Bd. Trustees, A. T. Atkins, administrator, Crookston, Minn. CD 9/19, under LB.

H. L. Stavn Co. Hibbing, Minn. CA $984,200. Silver Lake HOUSING, VIRGINIA, MINN. Virginia Redevelopment & Housing Auth., Virginia, Minn. CD 10/31, under LB.

▲ Carl A. Nelson & Co., Inc., Burlington, Ia., CA Total Est. $1,500,000, 1 story, bsmnt., brick, steel, tile 110,000 sq. ft. mfg. PLANT, BURLINGTON, IA. Sylvania Electric Products, Inc., 1740 Broadway, New York, N. Y. CD 9/4.

▲ Cuthbert & Son, Fort Dodge, Ia. CA $1,000,000. 100 HOMES, FORT DODGE, IA. Lex Realty Co., Fort Dodge, Ia.

▲ J. E. Dunn Constr. Co., 929 Holmes St., Kansas City 6, Mo. CA $1,709,242. Riverview HOUSING twenty-eight 2 story frame buildings incl. 232 units, North Pasco extension and Missouri Ave., KANSAS CITY, MO. Kansas City Housing Auth., City Hall, Forrest D. Byars, chn., Kansas City 6, Mo. CD 10/24, under LB.

▲ Austin Co., 16112 Euclid Ave., Cleveland, O., CA. Approx. $2,500,000, design and construct, DEPARTMENT STORE, AMARILLO, TEX. Federated Department Stores, Inc., 1440 Broadway, New York, N. Y. Meyer Katzman, 10 E. 52 St., New York, N. Y., archt.

▲ R. E. Nesmith Co., 6738 Long Dr., Houston, Tex., CA. $1,124,161. 1 and 2 story, 87,000 sq. ft. rein.-con. frame and fdn., brick, stone exterior HIGH SCHOOL, PASADENA, TEX. Pasadena Independent School Dist., Pasadena, Tex. Bids Oct. 25. CD 10/31, under LB.

▲ M. W. Kellogg Co., Port Arthur, Tex., CA. Approx. $1,100,000. ALKYLATION unit; CA. $875,000, catalytic polymerization unit; CA. Approx. $1,500,000. addnl. fluid catalytic cracking unit, PORT ARTHUR, TEX. Grand total $3,475,000. Pure Oil Co., c/o Smiths Bluff, Port Arthur, Tex. CD 10/26.

▲ Austin Co., 16112 Euclid Ave., Cleveland, O., CA. Approx. $2,500,000. Design and construct DEPARTMENT STORE, WICHITA FALLS, TEX. Federated Department Stores, Inc., 1440 Broadway, New York, N. Y. Meyer Katzman, 10 E. 52 St., New York, N. Y., archt.

FAR WEST

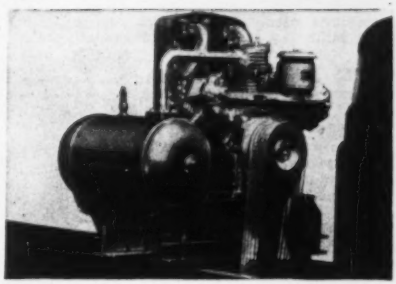
BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 28 California

▲ † Idaho—B.A. 11/27—Bureau Reclamation, Dpt. Interior, City Bldg., Idaho Falls, open-cut and tunnel excav., south fork of Snake River in Sect. 17, T. 1S.,

Costs $950 to $1000 less to buy and 50% less to maintain than trailer compressors

Jaeger truck-powered "Travel-Air"

Delivers 125 cfm at 100 psi—enough air to run 2 heavy breakers at full pressure—when truck engine is running at easy 1750 rpm. Simple power take-off is controlled in cab. Engine speed automatically regulated by air demand. 2-stage, air-cooled, force feed lubricated compressor unit.



Easily installed on Ford, Dodge, International, GMC, Chevrolet 1½ and 2 ton rated, long wheelbase trucks.

Sold, serviced by distributors in 130 cities. Send for Catalog TC-1.

THE JAEGER MACHINE COMPANY, 200 Dublin Avenue, Columbus 16, Ohio

For STRENGTH specify

TRI-LOK

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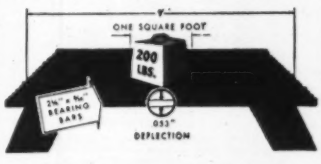
OPEN STEEL FLOORING



The locked-in strength of Tri-Lok enables it to stand up under heavy loads—even on long spans. Get maximum strength, air and light with minimum weight.

Tri-Lok is also available in Diagonal, or Super-Safety U-type Flooring, and in Stair Treads of all types. Write for Bulletin KK 1140.

The Tri-Lok Company is also equipped to furnish *riveted* and Tri-Forge *welded* open steel flooring. Tri-Lok can be furnished in a variety of metals, including aluminum alloy, stainless steel, etc.

DRAVO CORPORATION

National Distributor for the Tri-Lok Company

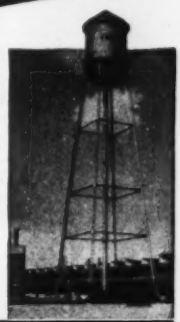
Dravo Bldg., Pittsburgh 22, Pa.

Sales Representatives in Principal Cities

DRAVO

PITTSBURGH · DES MOINES

ELEVATED STEEL TANKS



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ATLAS SPEED SYSTEM OF CONCRETE FORM CONSTRUCTION

Cuts Down Slab and Wall Form Costs

CUTS DOWN Form Costs — Steel Forms give you more uses—Many times more than wood. . . . Can be reused indefinitely, year after year on job after job. . . . Many contractors report 400, 500 and more.

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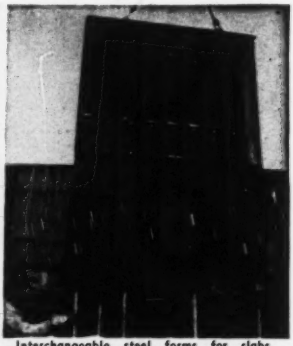
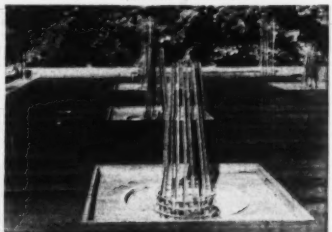


Interchangeable steel forms for slabs, walls, circular tanks, tunnels, manholes, modular structures.

SAVES TIME—A new technique —Forms can be set up, stripped, cleaned, moved and reused in half the time of other forms.

Get the complete story. Glad to have a representative call and give you layouts, cost studies, recommendations and prices. Write Dept. *RN*.



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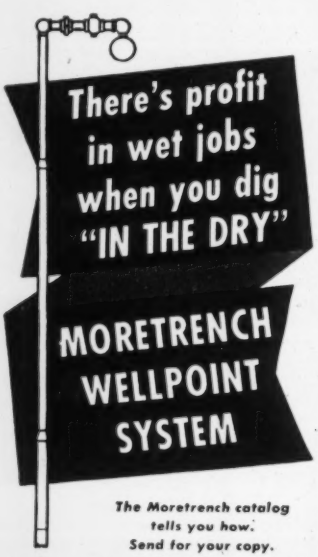
20 Vesey St. New York 7, N. Y.

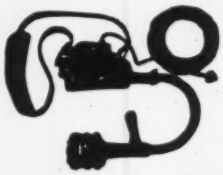
LABOR-SAVING *SPEED* FORMS



The Moretrench catalog tells you how. Send for your copy.

MORETRENCH CORPORATION
90 WEST STREET
NEW YORK 6, NEW YORK
Chicago, Ill. - Tampa, Fla. - Houston, Tex.

"BERG"
CONCRETE SURFACER
MODEL A



"Berg"' equipment is used extensively for surfacing and finishing applications on concrete construction.

The many "BERG" Models available, permit exact selection for your particular application.

The distinctive "BERG" features give you the kind of results that are realized in better quality work, combined with lower costs.

"BERG" Heads and Attachments are interchangeable, thereby providing adaptability for vibrating, wire brushing, sanding and polishing applications.

THE CONCRETE SURFACING MACHINERY CO.
4667 SPRING GROVE AVE.
CINCINNATI 32, OHIO

R. 45 E., Boise meridian in Bonneville Co., within Caribou National Forest, approx. 7.5 mi. upstream and southeast of Irwin on Idaho on Idaho State Hy. 29. Spec. DC 3586. Total cost $76,600,000. CD 10/26.

BIDS ASKED—BUILDINGS

▲ Calif., El Toro—HOUSING—B.A. 11/29—Dpt. Navy, San Diego, Calif., construct, manage and finance Title VIII Housing, incl. 571 unit project, $5,100,000. Plans deposit $200. Hugh Gibbs, 441 E. First St., Long Beach, archt. CD 7/3.

SOON LETS CONTRACT—BUILDINGS

Calif., El Segundo—YARD DEVELOPMENT—Douglas Aircraft Co., Inc., 827 Lapham St., soon lets contract yard development, $550,000. Van Dyke & Barnes, 2234 Beverly Blvd., Los Angeles, engrs. CD 5/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. G. Watts Constr. Co.**, 3419 16 Ave. W., Seattle, Wash., LB, **$3,689,990**, design, construction, installation and testing high frequency radio station for Voice of America, COPALIS, WASH. Officer Public Affairs, State Dpt., 21 St. and Virginia Ave. N. W., Wash. 25, D. C. Bids Oct. 31. CD 10/4.

Hoagland-Findley Eng., Co., 607 3 Ave. W., Seattle, Wash., LB, **$723,700, sewage treatment plant;**

The Baugh Co., 4438 California Ave., Seattle, Wash., LB **$128,910**, pump stations, Sch. 1B of Unit 1D, SEATTLE, WASH. Lake City Sewer Dist., 3622 E. 105 St., Seattle, Wash. Bids Nov. 1. CD 10/4.

Valley Constr. Co., 7708 Rainer Ave., Seattle, Wash., LB, **$266,873**, 1,139 ft. tunnel under Sand Point ridge from disposal plant to Lake Washington; LB **$460,408**, 78,225 ft. 8- to 12-in. sewers, Contr. 1;

M. Malaspina, 1901 23 Ave. S., Seattle, Wash., LB **$599,191**, 93,300 ft. 6- to 15-in. sewers, Contr. 3, SEATTLE, WASH. Lake City Sewer Dist., 3622 E. 105 St., Seattle, Wash. Bids Oct. 30. CD 10/16.

† **Aguiter Electric Co.**, 952 E. Seneca St., Seattle, Wash., CA, **$957,580**, est. $1,020,542, aircraft refueling sys. at McChord Air Force Base, ENG 45-108-52-32, TACOMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Sept. 21. CD 9/25, under LB.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

Erickson, Phillips & Weisberg 3341 Telegraph Ave., Oakland, Calif., LB, **$584,512**, wid'n., 14 rein.-con. bridges, roadways, etc. various locations between Deer Creek Overflow and Mill Race Creek, Tehama Co.

Lord & Bishop, P. O. Box 812, Sacramento, Calif., LB **$349,825**, underpass under tracks of S. F. R. R. on J St., Bridge over J St., etc., Sacramento Co. Bids Oct. 31. CD 10/9.

† **L. A. & R. S. Crow**, 2226 N. Rosemead St., El Monte, Calif., CA, **$733,741**, constr. Glen Anne Dam, earth-fill, 250 ft. long, 102 ft. high Cachuma Proj. near Santa Barbara, Spec. DC 3482, CALIFORNIA, Bureau Reclamation, Dpt. Interior, Goleta, Calif. Bids Oct. 19. CD 10/29, under LB.

▲† **Macco Corp., Morrison-Kundsen Co., Inc. and River Constr. Co.**, 14409 Paramount Bldg., Paramount, Calif., CA, **$5,873,781**, main dam, appurtemant works, Isabella Project on Kern River, No. 52-19, CALIFORNIA. U. S. Eng. Wright Bldg., Sacramento, Calif. Bids Oct. 9, awarded Oct. 29. CD 10/15, under LB.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

H. W. Ruby, 2851 Northrup Ave., Sacramento, CA **$543,017**, 13 bridges, etc. between Oroville Wye and 0.3 mi. south of Chico, Butte Co. Bids Oct. 17, awarded Oct. 31. CD 10/25, under LB.

▲ † **MacDonald & Kruse**, 7540 Westland Ave., Los Angeles, Calif. CA. **$1,248,000**. extend Runway 22-L at Naval Air Station, Spec. 29715, LOS ALAMITOS, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Sept. 27. CD 10/2, under LB.

▲ **M. F. Kemper**, 3701 Overland St., Los Angeles, Calif., LB, **$1,480,000**, constr. Eagle Rock Reservoir. Bids Oct. 29. CD 10/12;

Steve P. Rados, 2975 San Fernando Rd., Los Angeles, Calif., LB, **$712,175**, Unit 1, Eagle Rock-Hollywood Conduit;

United Concrete Pipe Corp., Bonita and Stewart Aves., Baldwin Park, Calif., LB **$2,491,281**, Unit 2, Eagle-Rock-Hollywood Conduit, Bids Nov. 5, LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids Oct. 29. CD 10/12.

R. A. Bell, 903 S. Primrose St., Monrovia, Calif., LB **$747,750**, diversion tunnel and power tunnel appurtenances Cherry River Project, Stanislaus National Forest, SAN FRANCISCO, CALIF. Public Utilities Comn., City Hall, San Francisco, Calif. Bids Oct. 23.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fred A. Rumph & Assoc.**, 144 W. San Antonio Dr., Long Beach, Calif., CA. **$3,576,200.** construct, manage, finance, 400 Wherry HOUSING units and facilities, in "E" area, Dugway Proving Grounds, TOOELE, UTAH. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids May 29. CD 6/13, under LB.

▲ **Richard R. Fairless & Assoc.**, 551 Union Pacific Annex Bldg., Salt Lake City, CA. Approx. **$1,300,-000.** construct, manage, finance, 150 Wherry HOUSING units at Deseret Chemical Depot, TOOELE, UTAH. U. S. Eng., 74 New Montgomery St., San Francisco, Calif. Bids July 25. CD 8/8, under LB.

Panelcrete Engin. Co., Heard Bldg., Phoenix, Ariz., CA, $700,000, 1 story, 120x240 ft. steel PLANT addn., PHOENIX, ARIZ. Aireasearch Mfg. Co., 9851 Sepulveda Blvd., Los Angeles, Calif. Howard P. Hess, 3806 Beverly Blvd., Los Angeles, Calif., archt.

Walker Boudwin Constr. Co., 624 E. Fourth St., Reno, Nev. LB $736,446, construct Hawthorne Elementary SCHOOL, HAWTHORNE, NEV. Hawthorne Elementary School Dist., Box LL-6, Hawthorne, Nev. Bids Oct. 30. CD 10/8.

School Dist. 165, Ephrata, Wash., rejected bids Oct. 1, 1 story, rein.-con., steel HIGH SCHOOL, EPHRATA, WASH. LB $871,000. Will re-advertise. CD 10/8, under LB.

▲ **Brunzell Constr. Co.,** 3945 Higuera St., Culver City, Calif., CA, $1,099,383, Whaley Junior HIGH SCHOOL, COMPTON, CALIF. Comptun Union High School Dist., 601 S. Acacia St., Compton, Calif. Bids Oct. 9, awarded 11/1. CD 10/15, under LB.

Indenco, 960 98 Ave., Oakland, Calif., CA, $559,039 Intermediate SCHOOL, CONCORD, CALIF. Mt. Diablo Unified School Dist., High School, Concord, Calif. Bids Oct. 30, awarded Oct. 31. CD 10/16.

▲ **Myers Bros.,** 3407 San Fernando Rd., Los Angeles, Calif., Owner Builds, $2,175,500, 229 frame, stucco DWELLINGS, Rosecrans and Prairie Aves., HAWTHORNE, CALIF. Paul J. Duncan, 4823 Laurel Canyon Blvd., Studio City, Los Angeles, Calif., archt.

† **Haas Constr. Co. and B. H. Tanner,** 274 Brannan St., San Francisco, Calif., CA, $604,800, Postgraduate SCHOOL for U. S. Navy, NOY 28909, Spec. 30523, MONTEREY, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids Oct. 24, awarded Oct. 30. CD 10/31, under LB.

▲ **Offco Constr. Co.,** 2650 Cherry Ave., Long Beach, Calif., CA, $1,243,710, furnish, install steam GENERATOR UNIT, PASADENA, CALIF. City, 100 N. Garfield Ave., Pasadena, Calif. Bids Oct. 4, awarded Oct. 30. CD 10/12, under LB.

Monson Bros., 475 6 St., San Francisco, Calif., CA, $938,346, Sunnydale Elementary SCHOOL in Mclaren Park, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Oct. 3, awarded Oct. 30. CD 10/9, under LB.

▲ **Williams & Burrows,** 10 California Dr., Burlingame, Calif., CA, $3,145,591, 149 bed HOSPITAL north of Castro Valley between Stanton Ave. and Lake Chabot Rd., SAN LORENZO, CALIF. Eden Twp. Hospital Dist., 453 Paseo Grand, San Lorenzo, Calif., Bids Oct. 11, awarded 11/5. CD 10/19, under LB.

▲ **D & E Corp.,** 463 S. Robertson St., Beverly Hills, Calif., Owner Builds, $1,000,000, 80 frame, stucco DWELLINGS, Balboa and Parthenia Sts., VAN NUYS, CALIF. W. G. Chandler, 7411 Beverly Blvd., Los Angeles, Calif., engr.

Moss-Lesser Constr. Co., 227 S. Robertson St., Los Angeles, Calif. Owner Builds, $700,000, 79 frame, stucco DWELLINGS in Ferro Tract No. 2 and Carr Tract No. 1, VENTURA, CALIF.

U. S. POSSESSIONS

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **E. V. Lane Co.,** P. O. Box 417, Palo Alto, Calif., CA, $6,032,747, furnish materials and construct POL STORAGE facilities, roads, etc., RYUKU ISLANDS, OKINAWA. U. S. Eng., APO 331, c/o PM, San Francisco, Calif. Awarded 11/2. CD 9/25.

CANADA

BIDS ASKED—BUILDINGS

Ont., Toronto—B. A. 11/19—Children's Aid & Infants Home of Toronto, c/o Harwood & White, archts., 229 Yonge St., 3 story, part bsmnt., Z-shaped, three wings, 37x124 ft., 66x37 ft., 43x96 ft., steel, brick, blocks, $600,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Marwell Constr. Co., Ltd.,** 410 Seymour St., Vancouver, B. C., CA, $1,127,531, central heating plants and quarters for R.C.A.F. personnel, VANCOUVER, B. C. Defence Production Dpt., 360 Homer St., Vancouver, B. C. J. L. Adams, c/o owner, engr.

Community Enterprises Ltd., 610 St. James St. N., Montreal, Que., CA, Approx. $700,000, 74 HOUSES near R. C. A. F. Station, ST. HUBERT, QUE. Central Mortgage & Housing Corp., 1247 Guy St., Montreal, Que. M. P. McAndrew, c/o owner, engr.

BUILDINGS

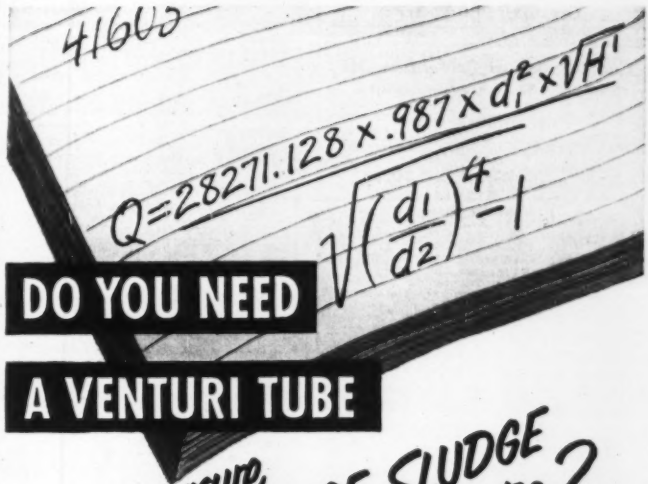
LOW BIDS AND CONTRACTS

Canadian Industries Ltd., Nylon Div., 1135 Beaver Hall Hill Montreal, Que. Own Forces, $500,000, nylon salt UNIT at Portsmouth, KINGSTON, ONT. CD 8/25.

McKay-Cocker Constr. Ltd., 233 Dundas St., London, Ont., CA, Approx. $700,000 BARRACK BLOCK (250-man) at Wolseley Barracks No. 1, Job 1574, LONDON, ONT. Defence Constr. Ltd. 441 Queen's Quay W., Toronto 2B, Ont. Bids Oct. 16. CD 9/26.

Sterling Constr. Co., Ltd., 2494 Sandwich St. E., Windsor, Ont., CA, $724,654, buildings and central heating plant in that area, WINDSOR, ONT. Defence Production Dpt., 441 Queen's Quay W., Toronto 2B, Ont. S. M. Connolly, c/o owner, engr.

(Proposal Advertisements see pp. 92 & 93)

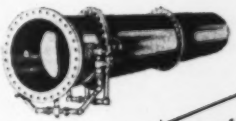


DO YOU NEED A VENTURI TUBE to measure SEWAGE, SLUDGE or TRADE Wastes?

1. A specially designed Venturi Tube for sewage flow with cast-iron upstream section and steel-plate downstream cone.

2. Flat-invert design with long downstream recovery cone for sewage and sludge measurement.

3. Special insert barrel design for sewage flow in restricted locations.



4. Flat-invert and flat top design for sewage flow under low-pressure conditions.

DIFFERENT forms of Venturi Tubes are available to suit your specific volume and pressure conditions. With these tubes, you can adapt a Simplex Venturi Meter to measure almost any kind of sediment-bearing liquid.

There is a type to suit your needs—whether for sewage, sludge, process liquors, or trade wastes.

IT'S SIMPLEX IT'S ACCURATE

Your request for a solution to any measuring problem will bring a prompt reply. Write to Simplex Valve & Meter Company, Dept. 11,6751 Upland Street, Philadelphia 42, Pennsylvania.

SIMPLEX

VALVE AND METER COMPANY

OFFICIAL PROPOSALS

Bids: November 30, 1951

Construction of Cofferdam Off Shores of Lake Michigan

AT
CHICAGO, ILLINOIS
FOR
NEW CENTRAL DISTRICT FILTRATION PLANT
SPECIFICATIONS NO. 80.391-51-4
DEPARTMENT OF PURCHASES, CONTRACTS AND SUPPLIES

Chicago, October 26, 1951.

SEALED PROPOSALS will be received by the City of Chicago until 11:00 A.M., Central Time, Friday, November 30, 1951, at Room 401, City Hall, Chicago, Illinois, at which time and place the bids will be opened and read for furnishing all materials, equipment and labor required for the construction of a combination cellular sheet steel piling type cofferdam and a clay and stone fill dike type cofferdam together with excavation, dredging, sand fill, dewatering the structure, field office building and other related work for the Central District Filtration Plant, located Five Hundred (500) feet off shore, Four Hundred (400) feet North of Navy Pier in Lake Michigan.

All the above in accordance with specifications and contract documents numbered above on file in the office of the Department of Purchases, Contracts and Supplies of the City of Chicago, Room 401, City Hall, Chicago, Illinois.

Proposals must be submitted upon the forms provided, available in Room 401, City Hall, Chicago, Illinois and be addressed to the Department of Purchases, Contracts and Supplies, indorsed "Proposal for Construction of Cofferdam at Central District Filtration Plant", and be accompanied with ONE HUNDRED THOUSAND DOLLARS ($100,000.00) in money, cashier's check, certified check or a Comptroller's Certificate of monies owed the particular vendor for the same amount. Checks are to be drawn on some responsible bank located and doing business in the United States and be made payable to the order of the Purchasing Agent, City of Chicago.

Plans and specifications may be obtained upon the payment of TWENTY-FIVE DOLLARS ($25.00) for each set, which will be refunded upon the return of said plans and specifications in good condition within THIRTY (30) days after the opening of bids. Deposits to be in the form of money or certified check. Checks to be made payable to the order of the Purchasing Agent, City of Chicago.

In accordance with the provisions of an Act of the General Assembly of the State of Illinois, entitled "An Act regulating wages of laborers, mechanics and other workmen employed under contracts for Public Works", approved June 26, 1941, the general prevailing wage rates for work at the construction site are set forth in the specifications.

The Purchasing Agent reserves the right to reject any or all bids.

No proposal will be considered unless the party submitting the same shall furnish evidence satisfactory to the Purchasing Agent of ability and the possession of the necessary facilities, together with sufficient pecuniary resources to fulfill the conditions of the contract and specifications.

J. F. WARD
Purchasing Agent

Bids: December 11, 1951

San Jacinto River Dam

HOUSTON, TEXAS

Sealed bids, in duplicate, will be received by the City Secretary of the City of Houston, until 3:00 p.m. C.S.T., Tuesday, December 11, 1951, and all bids will be opened and publicly read in the City Council Chamber at 3:15 p.m. on that date, for constructing the

SAN JACINTO RIVER DAM, INTAKE AND 72 INCH REINFORCED CONCRETE CONDUITS

The dam consists of an Ambursen Type reinforced concrete slab-and-buttress spillway 3160 feet long and 47 feet high, with earth embankments at each end. The following approximate quantities are required for the principal items:

80,000 c.y. Stripping
46,000 c.y. Core trench excavation
860,000 c.y. General excavation
50,000 c.y. Trenching, and finishing excavation
18,000 c.y. Backfill
360,000 c.y. Embankments, Impervious
755,000 c.y. Embankments, Pervious
250,000 c.y. Embankments, Unclassified
12,000 c.y. Topsoil
73,000 c.y. Reinforced concrete in foundation floors, mats, and paving
55,000 c.y. Reinforced concrete in buttresses, piers, deck slabs, abutments and structures
40,000 c.y. Gravel fill
4,000 c.y. Rockfill
2,000 c.y. Oyster shell road surfacing
6,500 tons Steel sheet piling
7,000 tons Reinforcing steel
20,000 sq. ft. premolded joint filler
3,600 lbs. copper water seals
2 Steel Tainter gates
2 Hinged steel flashboards
4 Electric gate hoists
1 Steel foot bridge
1 Intake tower, complete
1,150 Lin. Ft. dual 72" reinforced concrete conduit

The City has already purchased and will supply to the Contractor all miscellaneous steel and metallic items as follows: all reinforcing steel, cut and bent; all steel sheet piling; 2 Tainter gates and 2 steel flashboards, fully fabricated; 4 complete gate hoists with motors; 3 sluice gates and operating mechanisms with fabricated steel racks; all pipe rail, completely fabricated; steel foot bridge, completely fabricated; all miscellaneous and structural steel items required for dam intake tower and conduits completely fabricated.

The City has received a CMP allotment.

The plans, specifications and bidding documents may be secured from the office of the Director of the Utilities Department, City Hall, Houston, or from Ambursen Engineering Corporation, 295 Madison Avenue, New York or M & M Building, Houston, Texas.

Bids must be made on the standard proposal form, in duplicate, and must be accompanied by cashier's check or Bidder's Bond in an amount equal to 10% of the total maximum bid price.

The City reserves the right to reject any and all bids, or to accept any bid deemed advantageous to it.

A deposit of $50 is required for each set of plans and specifications, which will be refunded in full upon their return in good condition within 15 days after date of bidding.

M. H. Westerman
City Secretary

October 17, 1951

Bids: December 7, 1951

Rocky Gorge Dam and Pumping Plant on Patuxent River Laurel, Maryland

Sealed proposals, addressed to the Washington Suburban Sanitary Commission for constructing the ROCKY GORGE DAM AND PUMPING PLANT on the Patuxent River near Laurel, Maryland, will be received in the office of the Commission, Hamilton Street, Hyattsville, Maryland, until Friday, December 7, 1951, at 11 A.M., Eastern Standard Time, at which place and time they will be publicly opened and read.

The dam will consist of an Ambursen Type reinforced concrete slab-and-buttress dam, about 725 feet long and 130 feet high, with earth embankments at each end.

Alternate bids will also be received on a mass-concrete gravity type dam.

The approximate quantities of the principal items of each of the two types of dam are as follows:

Ambursen Type Dam
8,500 c. y. Mass excavation, common
2,500 c. y. Trench excavation, common
1,000 c. y. Mass excavation, rock
2,500 c. y. Trench excavation, rock
25,200 c. y. Reinforced concrete in slabs, buttresses, piers, abutments and bridge
1,500 c. y. Mass concrete in cut-offs and fills
1,100 tons Reinforcing steel
5,000 s. f. Line drilling

Gravity Type Dam
11,000 c. y. Mass excavation, common
500 c. y. Trench excavation, common
19,000 c. y. Mass excavation, rock
1,500 c. y. Trench excavation, rock
35,000 s. f. Line drilling
5,400 c. y. Reinforced concrete in piers, walls, hearth and bridge
90,000 c. y. Mass concrete in dam and cut-off
370 tons Reinforcing steel

Items Common to Both Types of Dam
1,500 c. y. Earth embankment
2,500 c. y. Backfill
1,000 l. f. Drilling and grouting holes 25 ft. deep
2,000 l. f. Drilling and grouting holes 50 ft. deep
13 tons Structural steel in trash racks
7 Tainter gates, 15 ft. x 27 ft.
2 Traveling hoists for Tainter gates
1 48-inch free discharge valve
1 Caterpillar gate, 6 ft. x 6 ft., with hoist
3 Sluice gates, 6 ft. x 8 ft., with hoists

Pumping Plant and Pipeline, Common to Both Types of Dam
1,000 c. y. Excavation for pipeline, common
6,000 c. y. Mass excavation for penstock, rock
4,000 c. y. Mass excavation for pumping plant, rock
1,200 c. y. Mass excavation for substructure, rock
1,000 c. y. Reinforced concrete in superstructure
136,000 lbs. 60-inch diameter welded steel pipeline and penstock
3 Pumps with 600 hp motors, capacity 12,600 G.P.M. at 165-ft. head
3 Hydraulic turbines, 600 hp, complete

The Commission has received a CMP allotment.

The plans and specifications and bidding documents may be secured from the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, or from the Commission's consulting engineers, Ambursen Engineering Corporation, 295 Madison Avenue, New York, or M & M Building, Houston, Texas. A deposit of $1.00 is required for each set of plans and specifications, which will be refunded in full upon their return in good condition within 15 days after date of bidding.

The right is hereby reserved to reject any or all proposals, and to waive informalities, as the interest of the Commission may require.

No bidder may withdraw his bid within 45 days after the opening thereof.

The successful bidder will be required to be bonded to the Commission to a sum equal to 100% of the amount of his proposal.

Each proposal must be accompanied by a certified check or bidder's bond for 5 per cent of the amount of the proposal.

WASHINGTON SUBURBAN SANITARY COMMISSION
Raymond W. Bellamy
L. S. Ray
J. Norman Ager
Commissioners

Bids: November 20, 1951

Electric Substations & Transformers

CONTRACT 414

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, November 20, 1951, for Contract 414, for furnishing, testing and delivering two 150-Kva. indoor unit substations and two 45-Kva. indoor and three 15-Kva. outdoor transformers for the Neversink and East Delaware intake chambers and the Downsville release water chamber of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

OFFICIAL PROPOSALS

Bids: November 20, 1951

Miscellaneous Work, Totowa, N. J.

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General work, structural steel, plumbing, heating and ventilating, and electric work in connection with Nursery Building and Housing for Patients at the North Jersey Training School at Totowa, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Tuesday, November 20, 1951 at two (2:00) o'clock and will be opened and read immediately thereafter. Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director

Bids: December 11, 1951

Public Housing Community

The Newport News Redevelopment and Housing Authority will receive sealed bids for the construction of Public Housing Community No. VA-3-4, consisting of 259 dwelling units, a heating plant, maintenance shop, and an administration and community building (41 structures), and located in the City of Newport News, Virginia, until 12:00 NOON, E.S.T., DECEMBER 11, 1951 at the offices of the Newport News Redevelopment and Housing Authority, Marshall Courts, 741-34th Street, (P.O. Box 77) Newport News, Virginia, at which time and place all bids will be publicly opened and read aloud. Contracts will be let for a lump sum, but the Newport News Redevelopment and Housing Authority reserves the right to reject any and all bids.

No bids may be withdrawn for a period of thirty (30) days after the scheduled closing time for receipt of bids.

Bids may be tendered in any of the following divisions or combinations:

1. Structures
2. Heating Work
3. Plumbing Work
4. Electrical Work
5. Site Improvement Work
6. Plumbing and Heating Work Combined
7. Structures, Heating, Plumbing and Electrical Work Combined
8. Structures, Heating, Plumbing, Electrical Work and Site Improvement Work Combined.

A deposit of $25.00 will be required for a set of documents and drawings covering Structures, Heating, Plumbing, Electrical, and Site Improvement Work. Such deposit will be refunded upon the return of the documents and drawings in good condition. Deposit check shall be made payable to the Newport News Redevelopment and Housing Authority. Contract Documents, Plans and Specifications may be obtained at the office of:

Williams, Colle and Blanchard, Architects & Engineers
Architects' Building
3415 Virginia Avenue
Newport News, Virginia

and may be seem at the Peninsula Builders' Exchange, 125-26th Street, Newport News, Virginia. Documents will be available November 12, 1951.

OFFICIAL PROPOSALS

Bids: November 27, 1951:

Butterfly Type Valves

CONTRACT 429

SEALED BIDS will be received by the Board of Water Supply at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, November 27, 1951, for Contract 429, for furnishing, testing and delivering two 60-inch cast iron motor-operated butterfly type valves, complete in every respect, for installation in the Downsville release water chamber of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS B. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: November 19, 1951

Project VI-I-1, Charlotte Amalie, St. Thomas

VIRGIN ISLANDS HOUSING & REDEVELOPMENT AUTHORITY
CHARLOTTE AMALIE, ST. THOMAS, VIRGIN ISLANDS, U. S. A.

The Virgin Islands Housing & Redevelopment Authority will receive sealed bids until 2 p.m. AST on the 19th day of November, 1951, at its office in Charlotte Amalie, at which time and place all bids will be publicly opened and read aloud, for the construction of a Housing Development at St. Thomas, V. I. described thus:

THIRTY (30) REINFORCED CONCRETE BUILDINGS WITH LOAD BEARING CLAY BLOCK WALLS, OF THE TWO-STORY TYPE, COMPRISING TWO HUNDRED FORTY (240) DWELLING UNITS; TOGETHER WITH UTILITIES AND SITE IMPROVEMENTS, UNDERGROUND CISTERNS, INFILTRATION GALLERY AND TREATMENT PLANT, ALL IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AS PREPARED BY SCHIMMELPFENNIG, RUIZ & GONZALEZ, ARCHITECTS, RIO PIEDRAS, PUERTO RICO.

Proposed forms of contract documents, including plans and specifications, are on file at the office of the Virgin Islands Housing and Redevelopment Authority, Box 68, Charlotte Amalie, St. Thomas, Virgin Islands. These may also be obtained from the offices of Schimmelpfennig, Ruiz & Gonzales, Architects, Monserrate Building, Rio Piedras, P. R.

Copies of the documents may be obtained by prospective bidders upon depositing a certified check for One Hundred ($100.00) with the Virgin Islands Housing & Redevelopment Authority for each set of documents so obtained. Such deposit will be refunded upon return of the plans and documents in good condition within a period of ten (10) days after the opening of bids.

A certified check or bank draft, payable to the Virgin Islands Housing & Redevelopment Authority, U. S. Government Bonds or satisfactory bid bond executed by the bidder and acceptable surety, in an amount equal to five per cent (5%) of the bid shall be submitted with each bid.

The successful bidder will be required to furnish satisfactory performance and payment bond.

Bidders attention is called to the fact that under the contract, the Contractor shall be required to pay not less than the minimum wage rate set forth in the specification and to comply with the minimum wage laws now in effect in St. Thomas, V. I., and with any minimum wage laws that may come into effect during the life of the Contract, without increase in contract price.

OFFICIAL PROPOSALS

The Virgin Islands Housing & Redevelopment Authority reserves the right to reject any or all bids and to waive any informalities in bidding

No bids shall be withdrawn for a period of sixty (60) days subsequent to the opening of bids without the consent of the Virgin Islands Housing & Redevelopment Authority.

VIRGIN ISLANDS HOUSING & REDEVELOPMENT AUTHORITY
HENRY W. DE LAGARDE,
Executive Director

Bids: November 27, 1951

Bids for Furnishing and Erecting a 500,000 Gallon Steel Reservoir

OFFICE OF CITY PURCHASING AGENT

1. Sealed proposals or bids will be received by the Purchasing Agent of the City of Nashville, Tennessee, at the office of the City Purchasing Agent in the City Hall until 10 o'clock A.M. on Tuesday, November 27, 1951, for furnishing and erecting a 500,000 gallon steel reservoir on base prepared by the owner. Said proposals will be opened and publicly read and must not be detached from specifications.

2. The proposed work consists of furnishing all materials, tools, equipment, apparatus, labor and supervision required in the furnishing and erecting complete, ready for service, the 500,000 gallon reservoir. The work is to be done in full compliance with the Instructions to Bidders, Specifications and Contract Documents.

3. Plans and specifications may be obtained from the Office of the Superintendent and Chief Engineer, Waterworks Department, Room 201, City Hall, upon deposit of $15.00 in the form of a certified check made payable to the City of Nashville. Said deposit will be returned to all unsuccessful bidders upon return of plans and specifications or $10.00 refunded if no bona fide bid is received.

4. The right is reserved by the City of Nashville, through its Mayor, to reject any or all bids, to waive any informalities in the bids received, and to accept any bid, which in his opinion, may be for the best interest of the City.

CITY OF NASHVILLE, TENNESSEE
BY E. B. SMITH
City Purchasing Agent.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-219 for furnishing labor and materials and performing all work for the construction of twelve 2-bedroom residences at Alcova Dam Government community, Kendrick Project, Wyoming, will be mailed to P. O. Box 280, Casper, Wyoming or delivered to the office of the Bureau of Reclamation in time for the public opening at 10 a.m., Mountain Standard Time, November 27, 1951, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280 Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $0.75 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Specifications No. DC-3579) will be received by Bureau of Reclamation, Huron, South Dakota, until November 29, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Wall substation, Transmission Division, South Dakota, Missouri River Basin Project. The work is situated approximately 6¼ miles north of Wall, South Dakota. Principal items are approximately: furnishing and placing reinforcement bars and fabric, 7,820 lbs.; furnishing and erecting steel structures, 46,700 lbs.; furnishing and erecting prefabricated substation service building, lump sum; installing transformers and other electrical equipment, 126,000 lbs.; and other work. Time allowed for completion will be 450 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 53, Denver Federal Center, Denver, Colorado.

U. S. Government
(Continued from page 3)

Department of Commerce, Bureau of Public Roads, November 2, 1951. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., NOVEMBER 30, 1951, for Project 1B7C5, Shenandoah National Park. From about ¼ mile south of Bootens Gap to Swift Run Gap, Page, Rockingham, and Greene Counties, Virginia. 18,600 tons Type H-1 Asphalt Pavement, Liquefier Type, and other work. Length 10.060 miles. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above, or at Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Spelman, Division Engineer.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Specifications No. DC-3582) will be received by Bureau of Reclamation, Huron, South Dakota until November 29, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Philip substation, Transmission Division, South Dakota, Missouri River Basin Project. The work is situated approximately 3 miles north of Philip, South Dakota. Principal items are approximately: furnishing and placing reinforcement bars and fabric, 8,530 lbs.; furnishing and erecting steel structures, 50,000 lbs.; furnishing and erecting prefabricated substation service building, lump sum; installing transformers and other electrical equipment 146,000 lbs.; and other work. Time allowed for completion will be 450 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 53, Denver Federal Center, Denver, Colorado.

SEARCHLIGHT SECTION

This index is published as a convenience to the readers. Every care is taken to make it accurate, but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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SEARCHLIGHT SECTION

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New Advertisements received by November 16th will appear in the November 29th issue.

ANNOUNCEMENT

POSITION OPEN

The University of Tennessee, Division of University Extension is conducting an open recruitment program in an effort to reach qualified persons interested in submitting applications for the position of Executive Director, Municipal Technical Advisory Service. Annual salary is $8,000-$9,600. Desirable qualifications are a Batchelor's degree in public administration, business administration, engineering or some related field and a minimum of six years of actual experience.

For further information or additional details please write to:

DEAN F. C. LOWRY
Division of University Extension
Box 8540 U. T. Station
Knoxville 16, Tennessee

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
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SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CONSTRUCTION SUPERINTENDENT. Buffalo Area, experienced in large construction projects. Send complete references and salary desired. P-2429, Engineering News-Record.

DESIGNERS AND Checkers — Experienced in Structural Steel and Reinforced Concrete. Long work program on Power Plants, Chemical Plants, Oil Refinery, and other Industrial Projects. Large, established engineering firm in Philadelphia, offering excellent employee benefits and premium pay for all over-time work. P-2352, Engineering News-Record.

ENGINEER EXPERIENCED in the design and construction of earth dams for established organization, preferably with working knowledge of soil mechanics, concrete control, and hydrology for the preparation and review of plans and specifications, report writing and field investigations and inspections. Some travel and public relations required. Salary open. Location Pennsylvania. Address P-2432, Engineering News-Record.

ENGINEERS, EXPERIENCED in paving work. Laying water mains and general water and sewage treatment works to act as Resident Engineers. Advise salary requirements and when available, work near capitol district, New York. P-2356, Engineering News-Record.

ENGINEERS WITH experience in preparation of plans for sewage and water treatment projects or related experience such as structures, hydraulics, etc. Location Northwestern Ohio. P-2319, Engineering News-Record.

ESTIMATOR: PERMANENT position with long established general contractor in Elizabeth, N. J. area. Must be experienced in industrial construction quantity takeoff and pricing. Submit full resume, stating experience, education, age, availability and salary expected. P-2419, Engineering News-Record.

HIGHWAY SUPERINTENDENT

The County of Manatee, State of Florida, is accepting applications for the position of Superintendent of Highways. Duties of this position will include supervision of highway and bridge maintenance, new highway and bridge construction, survey and mapping of right-of-way, layout, etc.

Applicants should be graduate C.E. with minimum of ten years experience in road and bridge construction and maintainance, capable of assuming full responsibility for operation and planning of a county highway system.

Address all applications to

BOARD OF COUNTY COMMISSIONERS
Court House, Bradenton, Florida

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Northern Illinois Contractor has permanent position for Civil Engineer with minimum 5 years experience in Hot Mix Asphalt surfacing and construction of various type bases. Must be able to call on industrial customers and Municipalities, and explain use of product. Submit resume, sample of handwriting, references, etc.

P-2401, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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THE ENGINEERING AGENCY INC.
53 W. Jackson Blvd. Chicago 4, Ill.
Room 1662 Harrison 7-4056

POSITIONS VACANT

HEATING AND Refrigeration Engineer wanted. Must be capable of handling mechanical layout, design and supervision of such installation. Locations of offices served are Racine, Wisconsin; Waukegan, Illinois; Lake Forest, Illinois; and Evanston, Illinois. Pay commensurate with ability. The firm is one of the largest plumbing, heating and refrigeration companies between Chicago and Milwaukee, and is expanding its services yearly. Stiles & Horne, Inc., 648 North Western Ave., Lake Forest, Illinois.

HIGHWAY AND Sanitary Engineers—Positions for highway Draftsmen and designers, Office Engineers, water and sewerage designers and draftsmen. Good pay for qualified men in accordance with experience. Opportunities for advancement. Write and furnish full information regarding education, training and experience, age, references and salary requirements. All replies considered strictly confidential. Department of Public Works, Baltimore County, Towson 4, Maryland.

MATERIALS ENGINEER—C. E. experienced in highway materials, permanent, good salary and opportunity. Give full information. P-2407, Engineering News-Record.

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Engineers and Builders
FERGUSON BUILDING CLEVELAND 14, OHIO

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P-2153, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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P-2434, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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Nationally known Southwestern firm constructing dams, locks, tunnels, bridges desires engineer—graduate preferred—with 8 to 14 years heavy construction experience in field and office to work into position of company representative on bidding and joint ventures. Knowledge of costs, plant layout, scheduling and equipment performance essential. Applicants with pleasing personality, good appearance and possessed of a high degree of business acumen favored. Give full physical and personal characteristics — recent photo if available — detailed experience record of past employment, duties and salary, and references who may be contacted.

P-2251, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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P-2262, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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P-1783, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

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633 Jackson Bldg. Buffalo, N. Y.

SEARCHLIGHT SECTION

POSITIONS VACANT
(Continued from page 94)

WANTED DRAFTSMAN to prepare placing plans for Concrete Reinforcing Bars and Steel Bar Joists. Apply giving age, experience and salary required. Southern Engineering Company, P. O. Box 1087, Charlotte, North Carolina.

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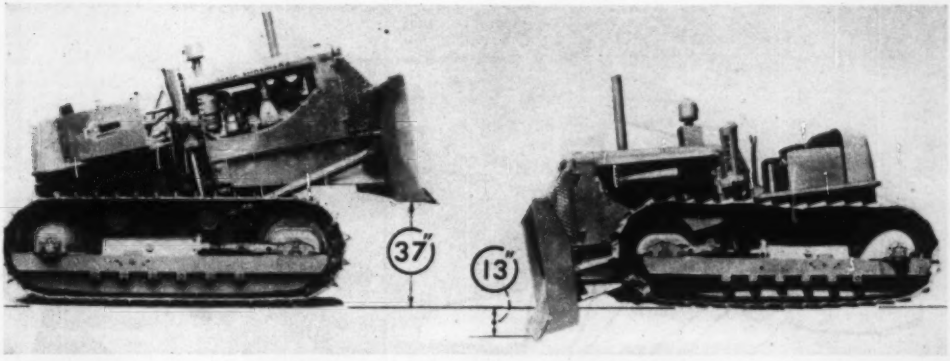


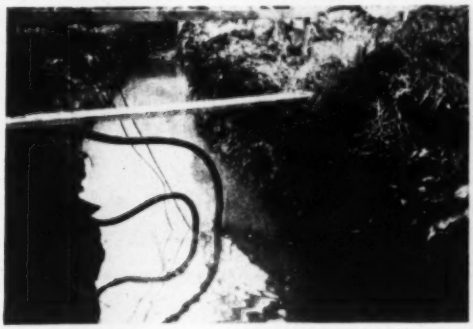
New Baker "No-pushbeam" bulldozer—a radical change

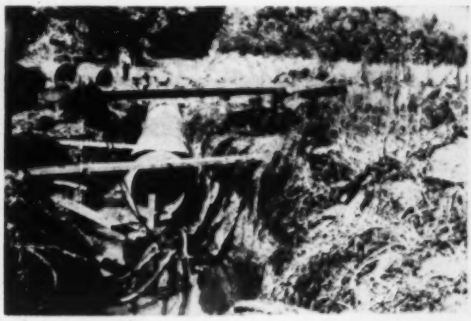
The first really radical change in industrial bulldozer design for several years is the Baker "No-Pushbeam" model shown above. It's an addition to the Baker line of bulldozers, grade-builders and root rippers regularly used with Allis-Chalmers crawler tractors. Designated as the 9-X, the dozer frame and tractor frame are bolted together as an integral unit, so the main tractor frame actually becomes the push beam. The tractor-'dozer is raised and lowered as a unit by double-acting hydraulic cylinders which support at all times the entire front end of the tractor frame as well as the 9X blade.

The new 'dozer has an 8-ft-wide blade and is used on the 70- drawbar hp 9-ton Allis-Chalmers HD-9. The 5½-in. dia cylinders (the same size used on standard Baker bulldozers designed for the 6-ton heavier HD-15) exert approximately 24,000 lb pressure which is sufficient for constant support as well as immediate blade response in either direction, according to the manufacturer.

In mounting the 9-X, the front spring and saddle are removed and the spring pads replaced by special brackets to which the lifting mechanism attaches. This mechanism is so designed that only vertical forces enter the truck frame at the identical points where forces would come in standard mountings. The blade has a maximum rise of 37 in., as shown above, and a drop of 13 in. below ground, allowing a steeper angle of approach due to the closer mounting of the blade to the tractor frame. The center of gravity on a 9-X mounted rig is said to remain well back of the second roller regardless of blade position, assuring maximum traction and permitting drawbar work without time-consuming dismounting of the blade. Although 18-in. tracks are recommended, 20-inchers can be accommodated.

The new unit weighs only 3,400 lb, a saving of 1,150 lb. Though reduced in width to 8 ft for easier over-the-road haul without special clearance permits, the height has been increased 6 in. so that it comes within 1 sq. ft. of retaining the area on the standard Baker blade for the HD-9. In exhaustive field tests it is reported to have dug a slush pit 6 ft. deep, 8 ft. wide, 50 ft. long at the bottom in 81 passes in a total elapsed time of 80 min.—THE BAKER MANUFACTURING COMPANY, DEPT. R, SPRINGFIELD, ILL.





Automatic utility submersible pumps—a job story

This new type submersible pump requires only 110-volts power and weighs only 50 lb. Its compactness and ease of handling makes it ideal as a utility pump. It may be submerged right into a ditch, since it has an exclusive switch construction and the motor is hermetically sealed and runs continuously in oil. The manufacturer claims that this oil-filled housing construction effectively dissipates heat, eliminating the possibility of burned out motors which occurs frequently in many small-motor pumps.

The pump pictured here came through its first baptism of fire with flying colors. Peter Mitchell, general

(Continued on page 106)

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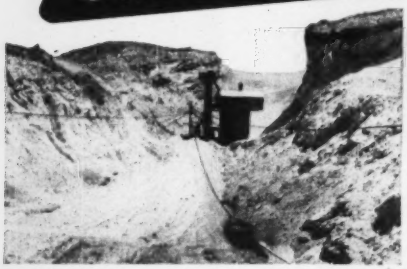

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Picture above shows how a 2 cu. yd. Sauerman Power Scraper with a 500 ft. operating span is used by the Nevada Silica Sands, Inc., to mine sandstone. Because the material will not cave, the digging path of the scraper must be changed frequently, so the tail end is arranged for automatic rapid shifting. A third drum on the 75 h.p. Sauerman scraper hoist controls the shifting. A smaller Sauerman scraper is used at the company's processing plant to reclaim sand from storage and load into cars.

"The best bet for big output and low upkeep on any dig-and-haul job," say users all over the world, "and Sauerman machines are simpler to operate, too."

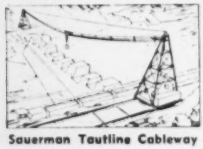
Yes, Sauerman machines feature speedy, trouble-free action under the control of a single operator . . . move large yardages from any point within their cable radii. Sauerman machines will reach across a river, deep down into a pit, up to the top of a hill or across a wide stockpile—and handle a heaping load every time. Digging, hauling and dumping are accomplished in one continuous rapid cycle.

Other desirable features of Sauerman Slackline Cableways and Power Drag Scrapers: First cost is surprisingly low . . . maintenance is negligible . . . unusual flexibility of the machines means they can be extended readily and thus adapted to suit every particular requirement.

Sauerman Scraper Excavator

Sauerman Scraper Stockpiler

Sauerman Slackline Cableway



Sauerman Tautline Cableway

Send today for **FREE** *Catalogs*

Send us your problems and we'll mail you the catalogs that will be of most interest to you. Booklets show exactly how these machines are used on hundreds of different jobs.

Write today for your free copies.

Rope Haulage Equipment Specialists Since 1909

SAUERMAN BROS., Inc.

532 S. Clinton St. Chicago 7, Ill.

New Products . . .

contractor of Greenwich, Conn. needed two in a hurry to drain his sewer line excavation on a housing project job in Stamford, Conn. He dug a small sump at the lowest point of the ditch and partially filled it with slag. A basket was made for the pump with 2x12-in. planks as a bottom and a heavy circular screen to clean out large rocks and foreign matter. This also prevented the switch from sinking into the muck.

That these small ½-hp. motor-driven pumps could "take it" was ably demonstrated by their operating almost continually 24 hours a day for 25 days until the job was completed. Each had a capacity of 3300 gph at a 10-ft. head. KENCO, INC., 1125 NORTH RIDGE ROAD, LORAIN, OHIO.

Air grinder has several safety features

Pictured above is a new air grinder which has an added safety device to prevent overspeed operation and possible accidents. It contains a motor governor to maintain correct wheel speeds, plus a built-in unit called the "Overspeed safety coupling". In case the motor overspeeds because of governor wear, abuse, maladjustment or dirty air, this device automatically uncouples the arbor and the grinding wheel from the motor, making it impossible to operate the grinder until the cause of overspeeding has been corrected.

Another safety feature is a multiple exhaust system. The operator can choose any one of four exhaust positions, spaced 90 deg. apart, and thus direct the exhaust away from the work and from his own body. A new rubber-face throttle valve is unaffected by oil or moisture and seats better under

(*Continued on page 108*)

TRU-LAY
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PERFORMS BETTER
HANDLES EASIER
SAFER TO USE
LASTS LONGER

Available through Distributors
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AMERICAN CABLE DIVISION

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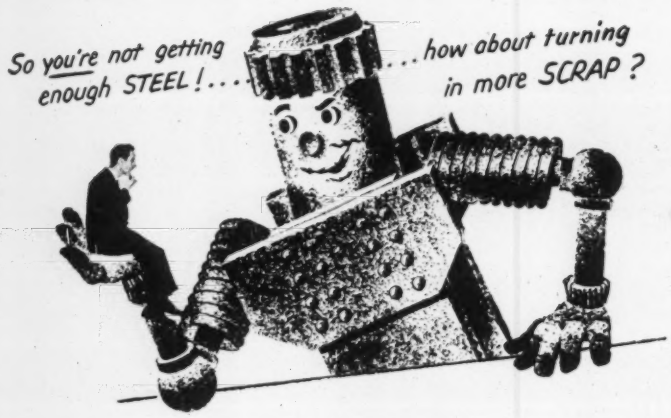


There's only one quick way to get more steel!

...get more SCRAP to the mills, at once

LET'S be realistic about the scrap shortage. The need for scrap is desperate. It threatens to hamper our whole National Defense effort—and it vitally concerns *you* because it boils down to this:

Unless 100,000 tons of industrial scrap roll into the steel mills every day, steel production will drop, and there'll be *less* steel for everyone—you included.

On the other hand, if more scrap is turned in, more steel will be turned out—and the more steel that's made the more steel *you'll* get.

So—if you want more steel—do your full share in getting your scrap back to the mills. Comb through your plant, again and again. Tap every source of dormant scrap. Dig out every retired machine that you can possibly spare and rush it to your scrap dealer. Rip out any old rails and switches that are rusting away on unused sidings—and scrap them. Scrap your antiquated dies, jigs and fixtures, your worn-out tanks and boilers that are gathering rust in some forgotten corner. Make sure that not a single pound of scrap is by-passed. Sell it—ship it. It means good money for you, more scrap for the Nation's scrap pile, and more steel for *everyone*.

• • •

Remember—the Nation's productive effort depends primarily on steel—and steel depends on SCRAP . . . *your* scrap. Turn it in—NOW.

USS

You'll find your local scrap dealers listed in the yellow pages of the phone directory.

This space would ordinarily be used to tell you about

OUR STEEL WAREHOUSE SERVICE

but, because steel cannot be produced without SCRAP, we are asking instead for your all-out help in getting more SCRAP to the mills.

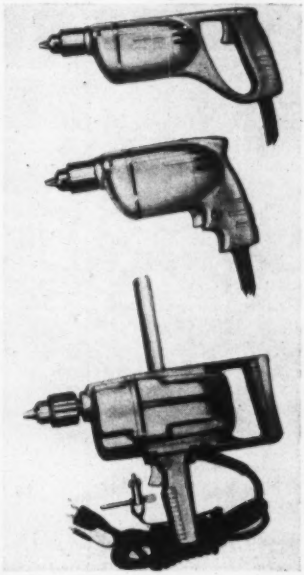
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSES COAST-TO-COAST

UNITED STATES STEEL

New Products . . .

all conditions than the beveled face steel type valve, according to the manufacturer.

The grinder is available for 8, 6, or 5-in. wheels, running at respective motor speeds of 3100, 4100 and 4500 rpm. Overall length is 24⅜ in. with straight handle and 22½ in. with grip handle. Further information can be obtained from INGERSOLL-RAND CO., 11 BROADWAY, NEW YORK 4, N. Y.

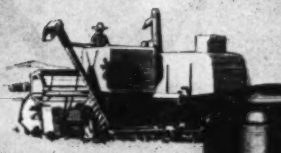


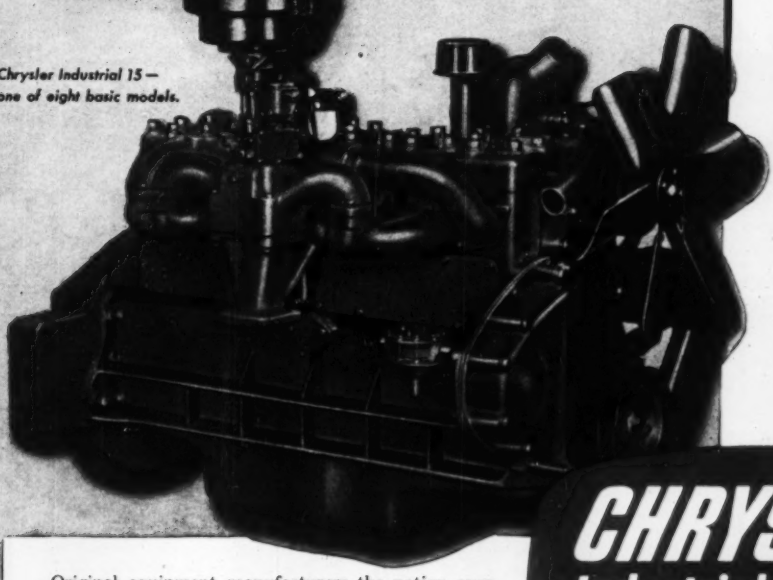
48 portable electric drill models

A total of 48 models of PET portable electric drills offers the widest range of ¼-inch electric drills available, according to the manufacturer. These drills are built in different power and speed models to cover the speed and torque requirements of ¼-inch, ⅜-inch and ½-inch capacity portable electric drills. One of the prime features is an adequate forced ventilation for cool operation in continuous use. All the ¼-inch models and the extra heavy duty models in the ⅜-inch and ½-inch capacities have ball and needle bearings throughout. Purchasers may have a choice of 8 speeds from 500 to 5,000 RPM without a load. There is also a choice of either pistol grip or saw type handle to suit operator preference. Said to meet all current Government specifications for ¼-inch, ⅜-inch and ½-inch drills, they are available from PORTABLE ELECTRIC TOOLS, INC., 320 WEST 83RD STREET, CHICAGO 20, ILLINOIS.

FIGHTING HEART

...of all this equipment!





Chrysler Industrial 15—one of eight basic models.

CHRYSLER-BUILT INDUSTRIAL ENGINES ARE THE SOURCE OF POWER FOR:

- Ditching Machines
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- Truck Mixers
- Shovels
- Loaders
- Yarders
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- Crane Carriers
- Scoop Tractors
- Air Compressors
- Hoists
- Derricks
- Pumps
- Generators
- Conveyors
- Tackle Blocks
- Winches
- Tractors
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- Gang Mowers
- Spreaders
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- Orchard Sprayers
- Hay Choppers
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Original equipment manufacturers the nation over install Chrysler Industrial Engines in their equipment because Chrysler-built means better performance... rugged dependability... trouble-free operation... longer operating life, service everywhere.

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A letter of inquiry will bring you a qualified Chrysler engineer. Address: **Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan.**

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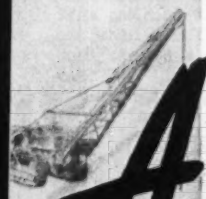


A Complete New Line of Allied Equipment

. . . Each combination designed, manufactured and serviced as a UNIT

Four great names in the industry — BAKER, CARCO, GAR WOOD, TRACTOMOTIVE — now bring you the finest selection and the most up-to-date equipment ever built for crawler tractors. Developed in full cooperation with Allis-Chalmers, this new line is matched to the new A-C tractors . . . makes it possible for you to handle a wider variety of jobs faster, easier and at lower cost.

The design of this equipment — mounted and drawn — takes full advantage of the balance and outstanding performance capacity of the tractors. Each unit, like the new tractors, is BUILT TO TAKE IT, EASY TO OPERATE, EASY TO SERVICE, and *most important,* DESIGNED FOR TODAY'S JOBS.

See your Allis-Chalmers dealer today for the full story. Remember, he sells and services both the tractors and the complete new line of approved Allied equipment.

Years Ahead

Each of the new Allis-Chalmers crawlers provides a new yardstick for rating tractors. Each sets new standards for performance, strength, servicing, operation.

HD-5	40.26 drawbar hp. 11,250 lb.
HD-9	72 drawbar hp. 18,800 lb.
HD-15	109 drawbar hp. 27,850 lb.
HD-20	175 net engine hp. 41,000 lb.

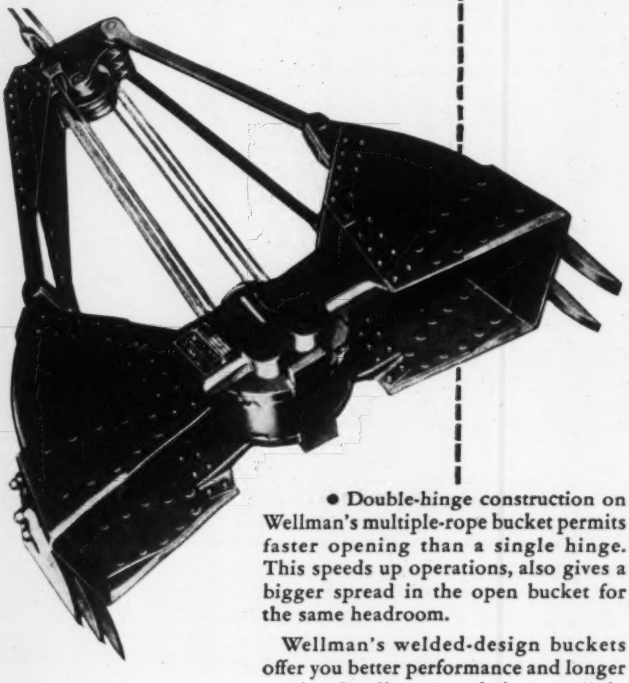
Hydraulic Torque Converter Drive

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

WELLMAN *Williams Type*

FAST BUCKET OPENING SPEEDS OPERATIONS



• Double-hinge construction on Wellman's multiple-rope bucket permits faster opening than a single hinge. This speeds up operations, also gives a bigger spread in the open bucket for the same headroom.

Wellman's welded-design buckets offer you better performance and longer service. In all types and sizes you'll do better with Wellman!

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Models 24'—27'—31'—35'
Price $2100. to $3500.

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MANUFACTURERS' PUBLICATIONS

Water hammer—The cause, effect and control of water hammer in piping systems are considered in the new 8-page bulletin, highly illustrated and easy to read. After describing water hammer in non-technical terms, the brochure indicates its potential damage to piping, instruments, and other parts of water systems, and then considers methods of controlling it.

Shown in the brochure are a number of curves representing some of the hundreds of tests taken. The curves indicate pressures up to 304 lb developed in only one-tenth of a second, and illustrated the bellows-like expansion and contraction of a pipe subjected to water hammer. Bulletin No. WH-851 may be obtained from THE WILLIAMS GAUGE COMPANY, 1620 PENNSYLVANIA AVENUE, PITTSBURG 33, PA.

Renting steel piling—A new 8-page illustrated brochure lists advantages of renting steel sheet piling and gives engineering details of interlocking sections. It contains specifications for piling sections, as well as corners and connections, of the three leading manufacturers of steel sheet piling. Data are also given on pile hammers and extractors available through the Foster Co.

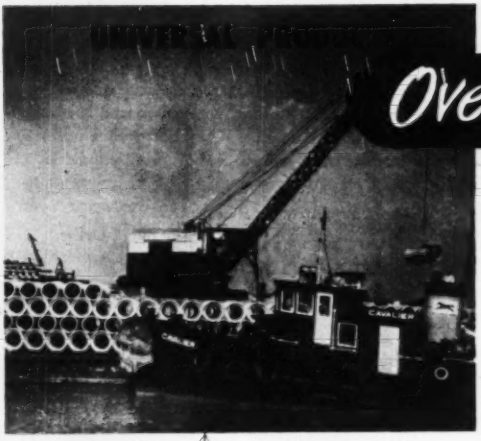
Six large construction projects are shown in photographs—where contractors were faced with unusual construction obstacles. L. D. FOSTER COMPANY, P. O. Box 1647, PITTSBURGH 30, PA.

Hose fittings and line oilers—A bulletin and a specification sheet—the first in a series to supersede the Blue Brute Accessories Catalog—have been announced by Worthington Pump & Machinery Corp.

The bulletin concerns Blue Brute hose fittings, including sizes, parts numbers and applications. Included are hose nipples, union nuts, hose clamps, coupling spuds, reducing coupling spuds, hose valves, splicing nipples, etc. The specification sheet (H-1200-B5) pictures and describes the new 2-quart oil liner, giving detailed specifications. WORTHINGTON PUMP & MACHINERY CORPORATION, DUNELLEN, NEW JERSEY.

Bros road machinery products—A new 6-page folder has just been issued by the Bros Co., giving complete information and specifications on their

(*Continued on page 115*)



Overseas for Defense

Universal products are *really* "universal" . . . in Greenland, Iceland . . . the islands of the Caribbean . . . South America . . . the right side of the Iron Curtain . . . you'll find Universal Products: sewer pipe, culvert pipe, flat-base pipe, cribbing, etc.

Universal Plants with access to the Atlantic and Gulf seaboards can ship abroad quickly and easily. Universal pipe-making equipment is also purchased and shipped abroad by United States contractors.

Defense projects, wherever they may be, gain the advantages of speed and superior material when the responsibility for getting there first with the best is given to any one of the 23 Universal plants. A representative will discuss details whenever you request.

UNIVERSAL CONCRETE PIPE CO.

Home Office: 297 S. HIGH ST., COLUMBUS 15, OHIO

UNIVERSAL CONCRETE PIPE CO. PLANTS—Decatur and Dothan, Ala.; Tampa, Fla.; Atlanta, Ga.; Kenvil, N. J.; Binghamton, Port Washington, Rochester and Syracuse, N. Y.; Columbus and Zanesville, Ohio; Norristown and Pittsburgh, Pa.; Nashville, Tenn.; Clarksburg, New Martinsville and Wheeling, W. Va. UNIVERSAL AFFILIATES—Concrete Pipe Co. of Ohio with plants in Cleveland, Youngstown and Sandusky, Ohio and Erie, Pa.; Florida Concrete Pipe Co., Ocala, Fla.; Dixie Concrete Pipe Co., Louisville, Ky.

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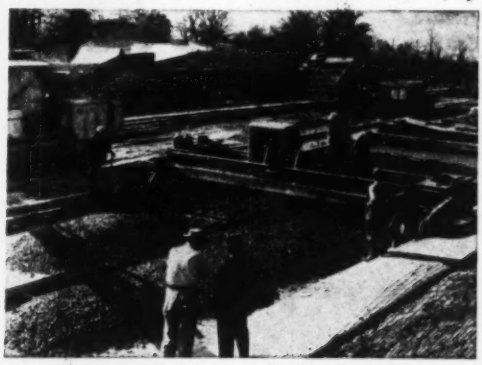

From simple joints for shafts turned by hand wheels — to finely balanced precision propeller shafts — road building equipment requires universal joints of almost every type. Many of them take a high-speed, power-packed beating on giant trucks . . . tractors . . . and complex paving machines.

But be they big or small, where you find universals on road building equipment, you'll usually find BLOOD BROTHERS' name. The reason is simple — and solid. BLOOD BROTHERS Universal Joints are engineered and built to deliver what the job requires — with a wide margin to spare — through years of use.

Whether it's road building machinery or another line — if you use universals, you may find it advantageous to consult with BLOOD BROTHERS' engineering staff. Write for catalog and information.

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how white is white?

"...whiter than new snow on a raven's back..."

Shakespeare

Use Trinity white—the *whitest* white cement. Trinity white is a true portland cement. It meets all Federal and ASTM specifications. Use Trinity white for architectural concrete units, terrazzo, stucco, paint, ornamental work, tile setting, etc. Ask for it by its full name Trinity white.

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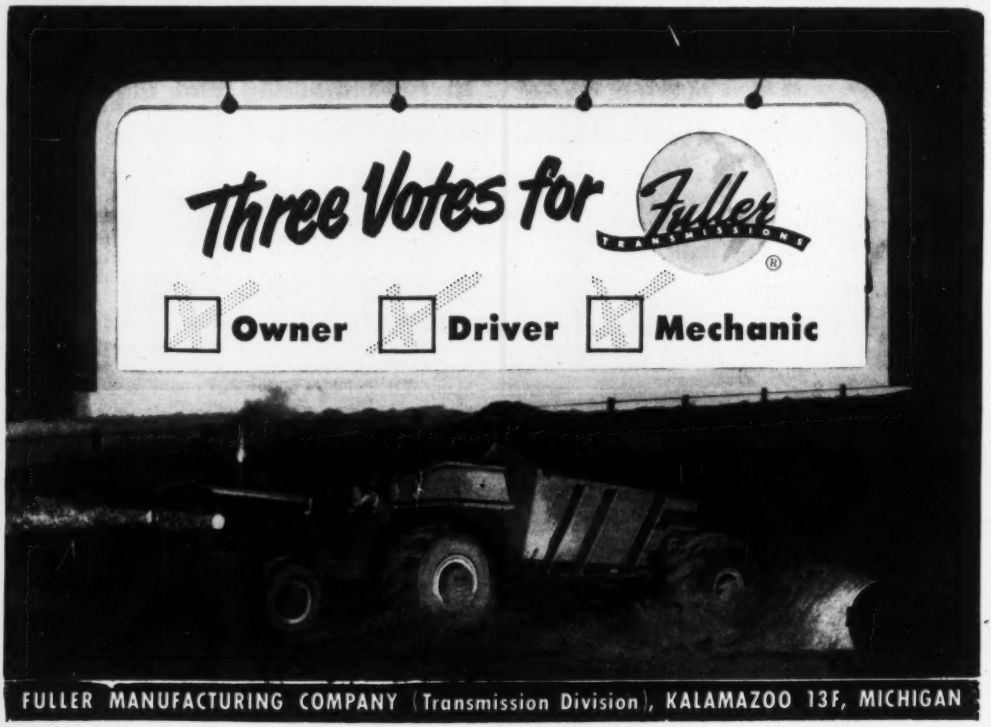
Trinity White!

PORTLAND CEMENT



FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

Manufacturers Publications . . .

medium weight tampers, giant weight tampers, portable steam boilers, asphalt circulators, and heaters, and pneumatic tire rollers, and their huge Roll-o-Pactor. Drawings explain the individual drum oscillation available on the giant weight tamper. These include single and double end oscillation, as well as center and offset oscillation. Illustration of the huge Roll-o-Pactor actual on-the-job photos taken on the New Jersey Turnpike. The huge machine has rolling capacities from approximately 12 tons empty to 500 tons fully loaded. WM. BROS. BOILER & MANUFACTURING COMPANY, MINNEAPOLIS 14, MINN.

Carbide-tipped hammer bits—A series of before-and-after photos of carbide-tipped drill bits tell their own story in this 8-page folder. The company's Thunderbolt hammer bit is especially recommended for hard concrete, limestone, granite, sandstone, and other rock too hard for regular rotary drills. Said to fit any electric or pneumatic chipping hammer, it is recommended for use with the Company's Cyclo-Twist Rotary Drill. Concise tables contain information on standard length, specifications and prices, as well as chuck wrench specifications. NEW ENGLAND CARBIDE TOOL CO., INC., 60 BROOKLINE ST., CAMBRIDGE 39, MASS.

Materials handling—A 24-page booklet titled "The How Book of Cost Cutting Materials Handling" is a revised edition of a previous booklet printed in 1947. A large portion of this "How" book is concerned with basic background material covering types of skids, pallets and other industrial handling tools. Most of the balance covers a comprehensive plant for evaluating present handling methods through an engineering analysis much like a time and motion study. Enclosed in the book are several charts and summary sheets for making a materials—handling analysis. THE YALE & TOWNE MFG. CO., 11,000 ROOSEVELT BOULEVARD, PHILADELPHIA 15, PA.

Protective paints—A 4-page technical folder containing a quick reference index to determine the most suitable coatings for rust prevention, chemical corrosion, and dampness is offered to architects, engineers, maintenance superintendents and painting contractors by THE WILBUR & WILLIAMS CO., 130 LINCOLN ST., BOSTON 35, MASSACHUSETTS.

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New power source rises in Pacific Northwest

The 39,000 ac-ft of useable storage behind the partially completed Hungry Horse Dam in northwestern Montana, shown above, holds plenty of power potential. It can provide 23,000,000 kwh of additional energy in downriver plants.

The increased output from power houses at Grand Coulee, Rock Island, and Bonneville, on the main stem of the Columbia, Kerr and Thompson Falls Dams in Montana, will result from releasing during periods of low flows downstream, the water that is stored at Hungry Horse during excessive flow of the South Fork of the Flathead River.

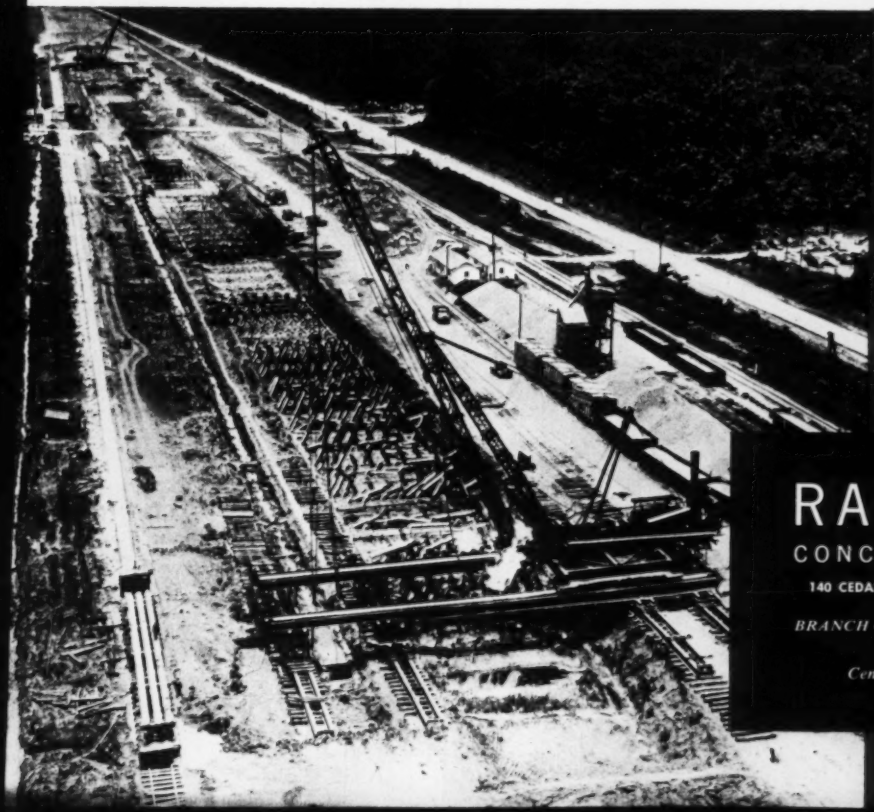
The Interior Department's Bureau of Reclamation reported that the unanticipated heavy run-off on the South fork has provided the 39,000 ac-ft of useable storage to date and that it may increase to as high as 190,000 ac-ft.

GIANT MORGANZA FLOOD CONTROL JOB

COMPLETED 3 MONTHS AHEAD OF SCHEDULE!

DRIVING FOUNDATION PILES for the gated portion of Morganza, La., Floodway Control Structure is one of the outstanding pile jobs of the year. Skilled planning of operations and use of two of the largest pile drivers ever built have enabled Raymond to complete this work three months ahead of schedule. Structure is supported on 3,734 precast concrete piles 80 to 118 feet in length—practically all driven on a batter.

Design and Construction under Supervision of
COL. CHARLES E. HOLLE, U.S.A., *District Engineer,*
New Orleans District, Corps of Engineers
Department of the Army.



THE SCOPE OF RAYMOND'S ACTIVITIES . . .

Soil Investigations, Piles and Caisson Foundations, Underpinning, Harbor and River Improvements and Lining of Canals and Concrete Pipelines by the Centrifugal and Vacuum Processes.

RAYMOND
CONCRETE PILE CO.
140 CEDAR STREET • NEW YORK 6, N. Y.

BRANCH OFFICES in the Principal Cities of United States and Central and South America.

"Blue Brute" lives up to its name with help of TIMKEN® bearings

THE "Blue Brute" 500′ diesel air compressors shown below are supplying air for wagon drills on the excavation job for a $22,400,000 Veterans Hospital at Peekskill, N. Y. Designed by Worthington engineers to stand up under the toughest service, the "Blue Brute" portable compressor has extra strength and ruggedness built into every part of it. And Timken® tapered roller bearings on the crankshaft help the "Blue Brute" stand up under hard service by providing extra-load capacity, and holding moving parts in alignment to reduce wear.

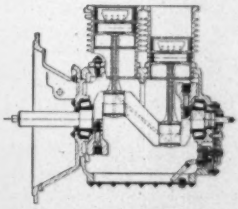
Since Timken bearings carry both radial and thrust loads or any combination, they minimize shaft deflection and end play. Related parts work smoothly, wear is reduced and long life assured.

Line contact between rollers and races of Timken bearings provides extra load-capacity. Closures are more effective, because Timken bearings hold shaft and housing concentric. Lubrication time and maintenance are minimized. True rolling motion and incredibly smooth surface finish of Timken bearings reduce friction and wear.

Timken bearings normally last the life of the machine in which they are used for these three reasons: (1) they are precision manufactured, (2) they are engineered for the job, (3) they are made of Timken fine alloy steel.

No other bearing offers all the advantages that Timken bearings do. Specify them for the machines you buy or build. Look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



How WORTHINGTON PUMP & MACHINERY CORPORATION mounts compressor crankshaft of 500′ "Blue Brute" on Timken bearings to assure proper alignment, long life.

WE MAKE OUR OWN STEEL

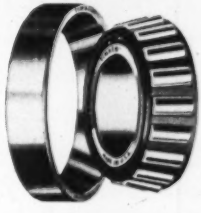
The special grade alloy steel which gives Timken bearings their strength and resistance to wear is made in our own steel mills.

The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

TIMKEN

TRADE MARK REG. U.S. PAT. OFF.

TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ⊂⊃ THE TIMKEN TAPERED ROLLER ⊂⊃ BEARING TAKES RADIAL ○ AND THRUST ⊂○⊃ LOADS OR ANY COMBINATION